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CONTENTS.

Original Communications.

PAGE

On the Treatment of some Forms of Advanced Cancer of the Uterus. By Frederic Bowreman Jessett, F.R.C.S.. 577
Some Results of a Bacteriological Examination of the Pipettes and Collyria taken from a Treatment Case used in Ophthalmic Practice, with the Effects of Inoculations. By G. E. de Schweinitz, M.D., and E. A. de Schweinitz, Ph.D. 582
Some Points in the Surgical Treatment of Simple Ulcer of the Stomach. By William F. Haslam. 588
A Paper introductory to the Discussion on the Radical Cure of Hernia. By Rushton Parker, M.B., B.S., F.R.C.S. 592
The Cool-Bath Treatment of Enteric Fever. By C. Stennett Redmond, L.R.C.P.I. 595
On the Use of Pilocarpine in Aural Affections. By G. Metcalfe, M.B., B.S., etc. 602
Tolerance to Nitro-Glycerin easily acquired. Limitations of Use of the Drug in Chronic Nephritis. By D. D. Stewart, M.D. 604
The Nature of Vaccine Immunity. By S. P. Kramer, M.D., and Rubert Boyce, M.B., M.R.C.S. 606

Leading Articles.

Antisepsis in Ophthalmic Surgery. 608
Some Facts in regard to the Administration of Iron. 609
Parenchymatous Injections in Acute Inflammatory Affections of the Tonsils.. 610

Reports on Therapeutic Progress.

The Treatment of Certain Forms of Fracture. 607
The Treatment of Vulvar Vegetations by Pure Carbolic Acid. 607
The Therapeutic Value of Chloride of Methyl. 611
Jambul for Glycosuria. 611

PAGE

The Treatment and Cure of Lepra Tuberosa with Europhen. 612
The Treatment of Constipation and some Affections of the Bowels with Large Enemas of Oil. 612
Certain New Views concerning the Diagnosis and Treatment of Round Ulcer of the Stomach. 613
The Dangers and Avoidance of Ergot in Obstetrics. 614
The Internal Use of Hot Water in the Treatment of Disease in Infants. 614
The Employment of Iodoform in Abdominal Operations. 615
The Use of Antispasmine. 616
Steresol. 616
Subcutaneous Injections of Salol in the Treatment of Tuberculosis. 617
On a New Therapeutic Method, consisting in the Use of Organic Liquids extracted from Glands and other Organs. 617
Anæsthetics in Labor. 618
The Comparative Actions of Exalgin and Antipyrin in the Treatment of Mental Derangements. 618
The Action of Phenocoll Hydrochlorate in Malaria. 618
The Therapeutics of Leukæmia. 619
Observations on the Nature and Treatment of Angina Pectoris. 619
Cascarine. 623
Soya Beans for Diabetes. 623
Asepsis in Operations performed on the Eyes. 623
On the Treatment of Gray Atrophy of the Optic Nerve. 625
Optic Neuritis and Optic Nerve Atrophy caused by the Toxic Action of Iodoform in a Case of Burn. 625
The Employment of Instillations of Sulphate of Quinine in the Treatment of Ulcerated Keratitis. 625
The Treatment of Strabismus. 626
The Extraction of Cataract without Iridectomy: Its Advantages and Dangers 627
Palpebral Eczema. 628
Removal of the Lachrymal Glands. 628
Statistics of Operations, with Remarks.. 629
Asepsis in the Ophthalmic Department of the Würzburg University. 630
What Benefit can Ear Patients derive from Nasal Treatment? 631
The Treatment of Sensitive Spines. 632
The Hæmostatic Properties of Puff-Ball 633

PAGE

The Strongly Counter-Irritant Effects of the Usual Mastoid Operation. 634
A New Suggestion as to the Surgical Treatment of Hemorrhoids. 634
Antiseptic Varnish—Steresol. 635
A Method of applying Pressure to the Seat of a Fracture for the Purpose of bringing the Bony Fragments into Accurate Apposition and retaining them there until Consolidation has taken place. 635
How should the General Practitioner deal with Strangulated Hernia? 635
Intestinal Anastomosis by a New Method 635
The Restoration of Symphyseotomy. 636
Cancer and its Treatment. 637
The Treatment of Tetanus. 637
Immediate Union after Division of Anal Fistula. 637
Menthol in Itching Affections of the Skin 637
Diagnostic and Therapeutic Value of Puncture of the Spinal Canal, according to the Method of Quincke. 638
Operative Treatment of Luxations of the Elbow. 638
Two Cases of Cut-Throat treated by Tracheotomy and Immediate Suture.. 639
Some Points of Practical Importance in the Use of Curved Skin Incisions. 639
The Treatment of Stricture of the Urethra by Electricity. 639
The Treatment of Tuberculous Disease of Joints by the Induction of Local Œdema. 640
After-Treatment of Cases of Abdominal Section. 640
Treatment of Gonorrhœa in Women. 641
Antisepsis in Urethral Surgery. 641
Tuberculosis of the Prostate.. 642

Reviews. 642

Correspondence.

London Letter. 644
Voltaic Alternatives in Eye-Affections ... 648

Notes and Queries.

A Warning to the Readers of our Journals 648

Original Communications.

ON THE TREATMENT OF SOME FORMS OF ADVANCED CANCER OF THE UTERUS.

READ AT THE MEETING OF THE BRITISH MEDICAL ASSOCIATION, AUGUST, 1893. OBSTETRIC AND GYNÆCOLOGICAL SECTION.

BY FREDERIC BOWREMAN JESSETT, F.R.C.S.,

Surgeon to the Cancer Hospital, Brompton.

THE treatment of advanced carcinoma of the uterus is a subject which has occupied the minds of all physicians and surgeons who have had their attention drawn to it from time immemorial, and it is one with which, from an extensive experience at the Cancer Hospital, I have endeavored for some years to cope.

In these advanced days of gynæcological art we are enabled to treat, by removal, the diseased uterus or the affected part of the organ, with tolerable precision and with marked success, but when the disease has extended deeply into the tissues surrounding the neck of the uterus, and the uterus itself, it is then that our art fails us and we have been in the habit of allowing such cases to drift onward until death steps in and releases the patient from further pain and suffering. It is to the treatment of these cases that I wish to draw your attention in this paper.

I have tried numerous forms of treatment in these cases that have been suggested and practised by other surgeons, but one after the other I have ceased to adopt them, as in none did any good result, and in many the disease seemed to be stimulated to increase with greater rapidity than if left alone.

It was with feelings of despair that I entered my uterine ward, feeling that all I could do was to alleviate the sufferings of some of the poor women who occupied the beds, but as to any further aid I felt I was utterly powerless to assist them.

Of late, however, a new era seems to have opened up, and I now undertake the treatment of many of these cases with full hope and expectation of, in some instances, eradicating the disease, and in others of considerably retarding it, and in all, of giving immense relief from pain and an improvement in general health.

In adopting the treatment I am about to describe, I was in the first instance struck by the fact that in many of the most advanced cases of uterine cancer which died the body of the uterus was often apparently free from disease. The disease appeared to have commenced in the cervical canal and then extended downward to the external os, and then eaten its way through the cervix and extended laterally into the cellular tissues surrounding it, and from thence along the broad ligaments.

Now, if the disease were attacked before it extended along the broad ligaments and before the bladder or rectum was affected, I thought I saw my way to cope with it. In the first place the thorough curetting away of all the soft diseased tissues was imperative. Then to find some form of caustic and method of applying it to the cavity caused by the removal of the disease so as to burn deeply into the surrounding tissues into which the disease might have invaded.

With respect to the curetting, I found the curettes by themselves were ill adapted to the purpose, as they removed the diseased tissues unevenly. I next turned my attention to Bell's dredgers, but found these did not fulfil all I wished, as they were too pliable and their calibre was too small. The idea then occurred to me if I could have an instrument constructed somewhat after the principle of Bell's dredger, that I could increase the size of by means of a screw in the handle, and furnished with watch-spring knives so shaped as to enable me to scrape out the contents of the uterus by simple rotations, I should have made a considerable advance, and should be able to accomplish all I required. Such an instrument was made for me by Messrs. Maw, Son & Thompson, and, as you will see, is worked by means of the screw at the end of the handle. By means of this screw the blades, which when first introduced lie flat on the central rod, are made gradually to expand until they represent an area of about one and a half inches in diameter. Here, then, I was furnished with an instrument by means of which I was enabled to remove the whole contents of the uterus with comparative ease, and, as the blades are not too sharp, no mischief can be done with them, and very little bleeding follows its use.

The next question which arose was the form of caustic and the method of its application. And here I followed in the steps of Drs. Marion Sims and Heywood Smith. To the latter gentleman I am indebted for drawing my attention to it, and I adopted the use of absorbent wool soaked in a saturated solution of chloride of zinc. The caustic applied in this form had the advantage of being readily packed. Before packing the uterus all bleeding must be arrested, as it is essential that the raw surfaces should be fairly dry before applying the caustic. The best method of arresting the hemorrhage is to apply locally sponges wrung out in very hot water, or, failing this, apply a sponge which has been soaked in tincture of matico. When the oozing has been sufficiently arrested the chloride of zinc wool is packed firmly in small pieces, being careful to see that it is packed well into the fundus so as to completely and firmly fill the cavity. A dry wool tampon is next applied to the opening into the vagina, and lastly the vagina is packed with tampons soaked in a strong solution of soda. These tampons can be removed the day following the operation, but the chloride of zinc packing must not be removed for at least five days. This wool is most conveniently removed by Marion Sims's screw, which is a long straight iron rod with a very fine double screw at the top. The vagina and uterus must be kept constantly syringed out with some antiseptic solution, preferably either solution of iodine or carbolic acid, through a full sized Fergusson's speculum.

As a rule, the slough caused by the caustic comes away in about ten days or a fortnight, when a healthy granulating surface is left. Should there be any suspicious spot, it will be well to pack the cavity again. This can be readily done without an anæsthetic through a full-sized Fergusson's speculum.

All the cases were treated with arsenic bromide, $\frac{1}{10}$ grain of which was administered

three times a day, after meals. I have every reason to be satisfied with this treatment.

The following eight cases, all of which were markedly benefited by the treatment, will illustrate the usefulness of this method.

CASE I.—Mrs. S., aged seventy, consulted me February 3, 1892, suffering from carcinoma of the cervix uteri.

I performed supra-vaginal amputation of the os and cervix. The patient made an excellent recovery. In November of the same year, there being some bleeding from the uterus, I examined her and found recurrence of the disease extending into the uterine cavity. The patient suffered much pain and discomfort. Considering the age of the patient, I did not think removal of the entire uterus justifiable. Moreover, the uterus was somewhat fixed by the extension of the disease. I therefore, with the assistance of Dr. Heywood Smith, thoroughly scraped and dredged the uterine cavity, and then packed it with chloride of zinc wool, as above described. At the end of a fortnight I removed a thick slough, which represented a cast of the inside of the organ. The uterus and vagina were kept constantly syringed out three times a day with a solution of carbolic acid. The patient made an excellent recovery, and had no local return of the disease. She, however, died in May, 1893, from secondary growths in the liver and lungs.

The following cases, for the notes of which I am indebted to Mr. West, the house surgeon, have been treated in the Cancer Hospital during the last year.

CASE II.—Rebecca H., aged thirty-three, married, six children, one miscarriage, admitted into Burdett-Coutts Ward on January 4, 1893, complaining of pain in the back and left iliac region, and of discharge from vagina, which patient has noticed for the last ten months.

Menstruation has been irregular during that period, severe floodings alternating with amenorrhœa; has lost much flesh.

Present Condition.—There is a mushroom-shaped soft growth in the situation of the vaginal portion of the cervix, which has ulcerated. The growth extends on to the posterior vaginal wall. The uterus is somewhat fixed.

On January 24, under ether, all the soft part of the growth was scraped away with the dredger, and the whole of the interior of the uterus was also scraped, which left a crater-like cavity. The cavity was then plugged with dry wool, which had previously been soaked in a saturated solution of zinc chloride and allowed to dry. A dry tampon of wool with a string tied to it was then passed, and the vagina was filled with plugs squeezed out of a strong solution of carbonate of soda.

The patient had very little pain after the application of the caustic.

January 25.—All the vaginal tampons removed except one, and the vagina well douched out three times a day.

January 27.—The zinc chloride wool removed from the uterine cavity. The uterus well douched out through a Fergusson's speculum.

January 28.—Much offensive discharge; otherwise patient experiences little discomfort. Temperature 99.8° F. Vagina well syringed out through a Fergusson's speculum three times a day with 1 to 40 carbolic.

January 30.—A whitish slough came away from the vagina, being a cast of the ulcerated cavity.

February 1.—Patient much better; no discharge to speak of; and states she suffers no pain. On vaginal examination, the cavity feels soft and healthy.

February 19.—Patient discharged; feels much better in her general health; no pain or discharge to speak of.

August 2.—She has reported herself from time to time, and still keeps in good health.

There is a firm cicatrix at seat of cauterization. No discharge.

CASE III.—Emma B., aged thirty-seven, married, eight children, one miscarriage two years ago, admitted in Burdett-Coutts ward March 18, 1893, complains of offensive discharge, sometimes blood-stained, and of pains in the back and of shooting pain down the left leg as far as the knee. Patient first noticed the discharge a year ago; she was then seven months pregnant. She has lost much flesh. There is no family history of cancer obtainable. Patient was ordered morphia ⅛ grain three times a day, as pain was very severe.

Present Condition.—A large crater-like cavity in the situation of external os, easily admitting the tip of the finger. The growth has extended to the vaginal walls; uterus much less movable than normal.

April 8, 1893.—Under ether the growth and the whole of interior of the uterus was scraped with the dredger. The cavity thus left was then packed with chloride of zinc wool. The vagina was then plugged with tampons of wool which had been squeezed out of a strong solution of bicarbonate of soda.

April 10.—Patient unfortunately contracted cystitis, as vaginal tampons were left in by mistake too long, and which were pressing on the bladder.

Vaginal plugs removed. Vagina well syringed out through Fergusson's speculum. Dry vaginal tampons placed in vagina.

April 11.—Cystitis much better. Vaginal plugs removed, and vagina well syringed out through a Fergusson's speculum three times daily.

April 12.—Chloride of zinc wool removed from the uterus, well douched with 1 to 40 carbolic.

April 13.—Much offensive discharge, and slough.

April 18.—No discharge or pain to speak of. Patient expresses herself much better.

April 19.—Uterus again plugged with wool soaked in chloride of zinc. Vagina packed with tampons squeezed out of a strong bicarbonate of soda solution.

April 21.—Chloride of zinc wool removed.

April 22.—Much offensive discharge and slough.

May 21.—Uterus again plugged as before, which plugs were removed on May 23.

June 1.—Patient discharged; has no pain or discharge to speak of, feels much stronger, and expresses herself as quite well.

August 3.—Still continues well and free from pain or discharge.

CASE IV.—Annie G., aged forty-five, admitted into Burdett-Coutts Ward on April 1, 1893, suffering from advanced carcinoma of the cervix.

Family History.—No family history of cancer.

Patient has had seven children and five miscarriages; patient had a miscarriage two years ago; has had vaginal discharge ever since, and pain in the back which has got much worse of late.

Present Condition.—Patient is a very anæmic and emaciated woman. In the situation of external os is a large ulcer admitting the tip of the forefinger. The posterior vaginal wall is infiltrated with the growth. Uterus much less movable than normal. Complains much of pain.

April 11.—The soft part of the growth was scraped away with the dredger, and the whole of the uterine cavity was also scraped. The cavity was then packed with chloride of zinc wool. Vagina was packed with wool squeezed out of a strong solution of bicarbonate of soda.

April 12.—Patient experienced little pain after coming to from the anæsthetic; slept fairly well without morphia; urine was drawn off by catheter every six hours. Vaginal tampons were removed, vagina well syringed out with 1 to 40 carbolic. A single dry tampon replaced in vagina.

April 14.—Vagina syringed out three times a day. Patient eats and sleeps well; little pain; temperature at night 100° F.

April 15.—Chloride of zinc wool removed from uterine cavity. Uterus well syringed out through a Fergusson's speculum.

April 19.—Some sloughs came away in the vaginal discharge.

April 21.—Discharge almost ceased.

April 24.—Uterus again packed with zinc chloride wool without an anæsthetic.

April 26.—Zinc chloride wool removed. Well syringed out three times a day.

May 1.—Large slough came away in vaginal discharges.

May 8.—Uterus was again packed with zinc chloride wool.

May 10.—Plugs removed. Uterine cavity well syringed out with 1 to 40 carbolic four times a day.

May 14.—Sloughs came away in vaginal discharges.

May 23.—Patient now has no pain or discharge; on vaginal examination the cavity left by the scraping and caustic is felt to be soft; no new growth felt. Patient expresses herself as feeling quite well; discharged.

August 2.—Quite free from pain or discharge, and is able to follow her ordinary vocation in life.

CASE V.—Harriet M., age 46, admitted into Burdett-Coutts Ward May 18, 1893, suffering from advanced uterine cancer.

History.—Patient has had vaginal discharge for the last twelve months. For the last ten months discharge has been offensive, and patient has had most severe pain in the back and hypogastric region. Has had increased frequency of micturition for the last two months, and pain on passing it.

Family History.—No history of cancer obtainable.

Past History.—Patient has had three children, the youngest twenty-three years ago; always regular till two years ago; has seen nothing since; has had no serious illnesses.

Present Condition.—A well nourished, fairly strong-looking woman, not anæmic.

On vaginal examination is felt a large mass of growth in the position of the cervix. The growth has ulcerated in the centre. The anterior vaginal wall is much involved, also the left broad ligament.

May 21.—Under ether, the growth was scraped and the interior of the uterus was cleaned out with the dredger. The cavity was packed with chloride of zinc wool. Vagina packed with wool wrung out of a strong solution of bicarbonate of soda.

May 23.—Uterine plugs removed, cavity well syringed out with 1 to 40 carbolic.

May 24.—Much offensive discharge. Patient has still increased frequency of micturition, urine alkaline; blood-stained bladder washed out with solution of quinine.

May 25.—Large sloughs came away; urine still alkaline, and blood-stained. Again washed out with solution of quinine.

May 28.—No improvement of bladder symptoms; evidently patient has malignant growth of bladder.

June 1.—No vaginal discharge; much pain on micturition; much blood in urine.

June 15.—Bladder symptoms still continue in spite of treatment. No vaginal discharge.

June 30.—Patient discharged; much blood in urine still. Scarcely any discharge per vaginam.

Case VI.—Ann W., age 48, admitted into Burdett-Coutts Ward at the Cancer Hospital suffering from advanced carcinoma of the cervix, May 22, 1893.

History.—Patient has had vaginal discharge for the last eight months, which has latterly become very offensive and sometimes blood-stained; has had severe pain in the back and in left iliac region for the last two months, which is relieved by large doses of morphia. No family history of cancer.

Patient has had eight children and one miscarriage.

Present Condition.—Patient is a poorly-nourished, anæmic woman.

Advanced carcinoma of cervix; the growth has infiltrated the posterior wall. Bimanually, uterus is much less movable than normal.

May 24.—Under ether, the growth was scraped away with the dredger as far as possible; also the whole of uterine cavity. The cavity was plugged with chloride of zinc wool. The vagina was packed with wool wrung out of a strong solution of bicarbonate of soda.

May 26.—Plugs removed from uterine cavity; uterus syringed out three times daily.

May 27.—Much offensive discharge.

May 30.—Sloughs came away in vaginal discharges.

June 4.—A small nodule of growth felt on the edge of the cavity, which was left after the scraping. Some crystals of chromic acid applied to the nodule. Vagina was packed with wool wrung out of a strong bicarbonate of soda solution.

June 5.—Patient had much pain after the caustic was applied; had a hypodermic injection of morphia.

June 6.—Vaginal plugs removed. Uterus well syringed out.

June 7.—A good deal of offensive discharge.

June 10.—No pain or discharge. Patient feels quite well again; discharged.

Case VII.—Maria T., aged sixty-four, admitted June 1, 1893, into Burdett-Coutts Ward, suffering from advanced carcinoma of the cervix.

Patient has had one child, thirty-nine years ago; has had five or six miscarriages.

No family history of cancer; strong family history of consumption.

For the last three or four months patient has had much offensive watery discharge, which is sometimes blood-stained; has very severe pain in the back and in the hypogastric region.

Present Condition.—Poorly-nourished woman; cervix infiltrated with growth which has ulcerated in the centre. Uterus much less movable than normal. The left broad ligament appears involved in the growth. The anterior vaginal wall is free from the growth. The posterior wall is slightly involved.

June 6.—Under ether, growth scraped away with the dredger; also the uterine cavity. The cavity plugged with chloride of zinc wool. Vagina packed with wool wrung out of a strong solution of bicarbonate of soda.

June 7.—Vaginal plugs removed. Vagina well syringed out with 1 to 40 carbolic.

June 9.—Chloride of zinc wool removed. Well syringed, three times a day, through a Fergusson's speculum.

June 12.—A large slough came away in vaginal discharges.

June 28.—Uterus again packed with zinc chloride wool.

July 1.—Plugs removed. Vagina well syringed out.

July 5.—Sloughs came away. Vagina well douched night and morning.

July 13.—Patient has no pain or discharge. No growth felt on vaginal examination. Feels well. Discharged.

Case VIII.—Mary M., aged thirty-eight, married, has twelve children; the youngest child is eighteen months old; admitted into Burdett-Coutts ward suffering from advanced uterine cancer on July 10, 1893.

History from Patient.—Patient was quite well till November, 1892. Has lost blood continuously since that date. Ten weeks ago had a miscarriage; about a three-months' fœtus.

Past History.—Has always been healthy till this illness. Has lived in the country all her life.

Family History.—Mother died of cancer of the uterus, aged forty-nine.

Present Condtion.—Patient is a very stout woman, somewhat anæmic-looking. On vaginal examination is felt, in the situation of external os, an ulcer admitting the tip of the forefinger, the posterior vaginal wall is infiltrated with cancer. The left broad ligament is fixed. Uterus much less movable than normal.

June 17.—Patient was placed under the influence of gas followed by ether. As much of the growth as possible was scraped away with the dredger. The dredger was also applied to the interior of the uterus, which was well scraped. The whole cavity thus made was packed with zinc-chloride wool. The vagina was then packed with tampons of wool wrung out of a strong bicarbonate of soda solution.

June 18.—Patient had a bad night, though experienced little pain.

June 19.—Vaginal tampons removed. The vagina well syringed out with iodine water.

June 20.—Vagina syringed three times a day. Temperature normal; patient experiences very little pain.

June 21.—The chloride of zinc wool removed from the cavity of the uterus. The uterine cavity well syringed out with 1 to 40 carbolic lotion. A dry tampon of wool replaced in uterus.

June 22.—Plug removed from uterus. Cavity well syringed out three times a day, much discharge. Temperature 99.8° F.

June 23.—A slough came away from the uterine cavity.

June 24.—No discharge or pain.

June 28.—Uterus packed again with zinc chloride wool.

July 1.—Uterine plugs removed.

July 6.—A large slough came away from cavity of uterus. Patient menstruating.

July 15.—No discharge or pain. Patient left the hospital against advice, as she was very anxious to get home again.

August 2.—Readmitted. There is an ulcerated condition of the edges of opening into uterus, to which a further application is to be applied.

SOME RESULTS OF A BACTERIOLOGICAL EXAMINATION OF THE PIPETTES AND COLLYRIA TAKEN FROM A TREATMENT CASE USED IN OPHTHALMIC PRACTICE, WITH THE EFFECTS OF INOCULATIONS.

A PRELIMINARY COMMUNICATION.

READ BEFORE THE COLLEGE OF PHYSICIANS OF PHILADELPHIA, APRIL 3, 1893.

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AND

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THE facility with which various fungi grow in many of the lotions commonly used in the treatment of ocular diseases, and particularly the proneness of the solutions of the alkaloids—cocaine, atropine, eserine—to accept this kind of contamination, has for a long time influenced the direction of much attention to the best methods of sterilization under these circumstances. True, these fungi and germs are not always, or not usually, pathogenic in the ordinary acceptation of the word; but the cases of wound infection, for example, after cataract extraction, from the use of unclean solutions, the microbic origin of toxic conjunctivitis (atropine, eserine, and cocaine conjunctivitis), and the probability, as Philippson* insists, that certain ulcers of the cornea owe their origin to infected atropine drops, furnish grounds for the exercise of every proper precaution to secure clean fluids, bottles, and pipettes.

The germs, as Franke has shown, may be present in the bottles and pipettes, or, as Davidson† has demonstrated, in the distilled water (micrococcus aquatalis, etc.); again, they may come from the surrounding air, or, finally, and this, as Franke insists, presents the greatest difficulty to overcome, they may be introduced into the lotions by the surgeon himself when, for example, the end of the pipette has accidentally touched the conjunctiva or the eyelashes, and thus carried into the bottle some of the micro-organisms so commonly present in these structures.

Franke, to whose research we have referred,

* "Ueber ulcus corn. serp., durch Eintäufelung septischer Atropinlösungen hervorgerufen." Hosp. Tid., R. iii., 1885. Quoted by Franke, *Arch. f. Ophthal.*, Bd. xxxvii., Abt. ii. p. 73.

† *Berlin. Klin. Wochenschr.*, 1888, No. 35. Quoted by Franke, *loc. cit.*

gives a very interesting *résumé* of the various procedures which have been practised to secure sterilization under these circumstances. From the time that Kroemer added to solutions of the alkaloids salicylic acid (1 to 400), boric acid (4 to 100), and carbolic acid (1 to 1000), which, even in this strength, was found sufficient to prevent the growth of fungi, up to the present date, a variety of methods have been practised, which may be summarized as follows: Sterilization by heat, by the addition of an antiseptic, by the combination of these two methods, and by the chemical synthesis of alkaloids with antiseptic acids.

Particular attention has been directed to cocaine. Sattler, for example, was accustomed to prepare a solution of this alkaloid by adding to it a 1 to 5000 solution of bichloride of mercury, which later was changed to a 1 to 10,000 solution upon the strength of some investigations made by Herrnheiser. The same method of preparing cocaine is extensively used by many surgeons.

Eversbusch boiled the solution preparatory to an operation, a procedure which sterilizes the fluid itself, but does not prevent the entrance of bacteria from the surrounding air.

Hirschberg, with characteristic thoroughness, first sterilized his solution in the ordinary manner in a sterilizing apparatus, and then added to it sublimate (1 to 5000).

Finally, an attempt to secure an antiseptic drug has been made by combining eserine and cocaine with salicylic acid, in the form of salicylate of eserine and the salicylate of cocaine, a pharmaceutical experiment at one time endorsed by Galezowski and Petit.

As there seemed objections to some of the methods and uncertainties in regard to others, Franke has reviewed the whole subject, and endeavored to discover the simplest and safest method of sterilizing eye-lotions, and has devoted himself to the sulphates of atropine and eserine and the hydrochlorate of cocaine, the first in one-per-cent. and the second in two-per-cent. solution.

The most important conclusions which are given by the author at the close of his paper are here summarized: Chemical disinfection of "eye-drops" is a method in general to be preferred to a sterilization by heat, because by the latter procedure the lotions are not protected from the micrococci which may fall into them from the surrounding air. The drugs which may be employed for this purpose are sublimate (1 to 5000 and 1 to 10,000), oxycyanide of mercury (1 to 1000 to 1 to 1500), resorcin (one per cent.), carbolic acid (one-half per cent.), boric acid (four per cent.), with one per cent. of carbolic acid, Panas's fluid and thymol in the form of thymol water or chloroform water. The last two substances have the disadvantage of producing smarting and burning of the conjunctiva. In their behavior towards the staphylococcus pyogenes flavus and Michel's trachoma coccus, sublimate (1 to 1000), oxycyanide of mercury (1 to 1000), and thymol water surpass the others.

It is not possible, however, for ophthalmic purposes to use these lotions in a strength sufficient to obtain an absolutely antiseptic action, but in general it is safe to add a portion of sublimate lotion (1 to 10,000) to atropine and cocaine solutions, in order to make them aseptic for a space of from one-half to one hour.

Sterilization alone of atropine and cocaine solutions, when they are used in operative work, without the addition of an antiseptic, is not nearly so satisfactory as a combination of the two methods.

The addition of a 1 to 10,000 sublimate lotion to an atropine solution prevents the production of atropine conjunctivitis.

In addition to these precautions, it is recommended that the bottles and pipettes be sterilized by boiling and mechanical cleaning. In short, two methods of sterilization are practicable,—namely, the addition of a chemical substance and the use of heat,—and even Franke does not feel quite safe unless he employs both.

Pergens,* after reviewing the various methods of sterilization, and pointing out the advantages and disadvantages of each, suggests that hypodermic tablets, which have been carefully manufactured and well dosed, shall be prepared. These are dissolved in sterilized water and poured into bottles of the capacity of three to five grammes. Each patient is treated with a different tube, which is then plunged in the sublimate solution, where it remains for several hours. These pipettes are washed with water and sterilized with steam, because he believes the principal cause of infection to be from these sources.

Heat alone, however, is entirely sufficient, if proper precautions are taken that the surrounding bacteria shall not fall into the fluid and that a convenient method shall be designed for heating the fluids. To this end Stroschein† has described a new bottle, or rather a combination of flask and pipette. He has had

* *Annales d'Oculistique*, December, 1891.

† *Archiv f. Ophthalmology*, Bd. xxxviii., Abt. 2, p. 155.

blown glass bottles constructed with droppers which may be directly exposed to the flame, thus rapidly sterilizing the bottle and its contents. The pipette has two conical ends, and is introduced into the neck of the bottle point upward, the rubber head being removed before the reversal. If the collyria are to be boiled, the small tube must be reversed, so as to give free vent to the steam, which, passing out of the tube, sterilizes it at the same time. Experiments have shown the inventor that the collyria need to be boiled only three or four minutes to render them perfectly sterile, and for the point of the tube, which is directed upward during the ebullition, likewise to become sterile. The loss of water which is produced by a boiling of three or four minutes is about one cubic centimetre; hence, if concentration of the solution is to be avoided, fifteen drops of water should be added before the boiling is commenced.

A number of so-called antiseptic droppers have been devised, one pattern consisting of the combination of the dropper and glass cork in a single piece of glass. All of these devices are ingenious, but do not secure the introduction into the eye of an aseptic fluid, because, as has been proved over and over again, the water in which the drug is dissolved may not be clean, and solutions of the alkaloids, with the possible exception of eserine, even when freshly prepared, will usually yield a growth of fungi and various micrococci in culture media.

Although the question of infection and sterilization of eye-lotions has so frequently and so thoroughly been investigated, we desire to present the results thus far obtained in a research the object of which was to ascertain, purely for our own satisfaction, the condition of the fluids, pipettes, and bottles contained in a case which had been much used in the treatment of various ocular disorders, although never in operative work, and with which no special precautions had been taken. The examinations are not complete, but they have developed some points of interest, and these may be briefly stated.

The following fluids were taken from the bottles and carefully placed in sterilized flasks and suitably corked: boric acid, 15 grains to the ounce of distilled water; bichloride of mercury, 1 to 10,000; nitrate of silver, 1, 5, and 10 grains to the ounce, respectively; sulphate of atropine, 4 grains to the ounce; hydrobromate of homatropine, 8 grains to the ounce; hydrochlorate of cocaine, four per cent.; sulphate of eserine, 1 grain to the ounce; and Gruebler's fluorescine, two per cent.

The pipettes which had been used in these fluids, and in them only, as each one is attached to its own bottle by a special arrangement, were also placed in carefully-sterilized flasks and examined.

The droppers were tested in the following manner: Thoroughly-sterilized distilled water was drawn up into each pipette until the latter was three-quarters full, and then forced out by the rubber bulb and allowed to drop into potato-tubes, peptonized beef-broth, and agar-agar. The tubes were then placed in the incubator and examined at the end of forty-eight hours.

The cocaine and eserine droppers treated in this way gave, in forty-eight hours, growths on all three of the culture media, which, upon examination, proved to be a mixed culture of long and short bacilli and micrococci.

After two weeks a growth was noticed on the potato culture from the fluorescine pipette; but it is not certain that this was not the result of a contamination.

Other droppers tested in exactly the same way—namely, those from the atropine, homatropine, and pyoktanin solutions, and an unused dropper—yielded no growth whatever.

The lotions themselves were treated by transferring to the culture media,—potato, peptonized beef-broth, agar-agar,—by means of a platinum loop, drops of the liquid to be examined. The cocaine, boric acid, atropine, and homatropine lotions developed growths on potato, peptonized beef-broth, and agar-agar. At first the drop inoculations of the fluorescine yielded no result; later, a larger quantity gave an abundant fungus growth. The other solutions developed nothing at all,—namely, eserine, nitrate of silver, and bichloride of mercury.

The pathogenic effects of the culture so far obtained, though not pure, were next tried. The agar-agar cultures were the source of the material for injection, and an emulsion of the surface growth and the condensation water of the culture was used, one-tenth of a cubic centimetre for each injection. The injections were made by means of a hypodermic syringe into the anterior chamber of a rabbit's eye, care being taken not to injure the lens. The cultures from which the injections were made were from the boric-acid lotion, cocaine, fluorescine (dropper), homatropine, and eserine.

The eserine growth caused in the eye of the rabbit a slight inflammation of the iris, which disappeared in two days.

The growth from homatropine produced a mild iritis, which lasted for four days.

The culture from the fluorescine dropper provoked a slight iritis, associated with a moderate keratitis, which disappeared spontaneously in eight days.

The cultures from the boric acid and the cocaine—the first derived from the solution and the second from the pipette—produced a violent hypopyon keratitis and purulent iritis.

Rabbits were then taken and the corneæ abraded with a sterilized needle. The boric-acid and cocaine cultures were dropped on eyes thus prepared and rubbed over the abraded surfaces. The result was a slight ciliary injection in the region of the abrasion and a moderate haze in the cornea surrounding it, which lasted for two or three days, and was more pronounced than the inflammation produced by a simple abrasion of the cornea without the application of the germs.

In order to control the injections in the anterior chamber, the eserine solution, which had not produced a growth upon the culture media, was injected without results; hence the hypopyon keratitis developed was not the effect of the fluid, but of the bacilli and fungi which it contained. Further control experiments with negative results were made by the injection of sterile culture liquids.

The cultures from the boric acid and cocaine show under the microscope long and short bacilli and micrococci; proteus vulgaris and bacterium termo (Viguel) have been isolated. The bacilli have the general appearance of the ordinary water bacilli. Sufficient time has not yet elapsed to separate them in a pure culture. The homatropine growth and the one from the eserine dropper showed short fat bacilli. The atropine and fluorescine (dropper) cultures are the ordinary fungi.

The experiments in detail, with the daily appearance of the eyes, follow:

November 30, 1892.—Gray rabbit, No. 1; weight, 4 pounds; received $\frac{1}{10}$ cubic centimetre of the culture obtained from the eserine dropper.

December 1.—The eye was very slightly injected and iris hyperæmic.

December 2.—Eye entirely well.

November 30, 1892.—Gray rabbit, No. 2; weight, 4¼ pounds; received an injection in the left eye of $\frac{1}{10}$ cubic centimetre of the culture from the fluorescine dropper.

December 1.—Centre of the cornea cloudy.

December 2.—Eye still clouded; the blood-vessels of the iris decidedly injected.

December 3.—Still a slight inflammation of the iris; apparently a little pus in pupillary space, but the cornea no longer cloudy.

December 5.—Iris still slightly inflamed; pus almost entirely disappeared.

December 6.—Slight iritis.

December 7.—Slight iritis, but better.

December 9.—Still a very slight inflammation.

December 13.—Eye entirely well.

November 30, 1892.—Rabbit, No. 3; weight, 4 pounds; received $\frac{1}{10}$ cubic centimetre from culture growth of homatropine solution.

December 1.—Iris a little inflamed and a slight opacity in pupillary space.

December 2.—Eye still inflamed.

December 3.—Inflammation subsiding.

December 5.—Eye almost normal.

December 7.—Slight iritis.

December 9.—Slight iritis.

December 14.—Eye perfectly well.

November 30, 1892.—Brown rabbit, No. 4; weight, 4 pounds; received $\frac{1}{10}$ cubic centimetre of culture from cocaine dropper.

December 1.—Eye very cloudy and inflamed.

December 2.—Eye swollen, inflamed, mattering.

December 3.—Extensive iritis; hypopyon.

December 7.—Extensive hypopyon keratitis.

December 9.—Eye about the same as December 7, except that the blood-vessels in the cornea had become very much more prominent.

December 14.—Eye in the same condition as December 9.

February 7, 1893.—Eye removed. There had been practically no change in its appearance since December 14.

November 30, 1892.—Rabbit, No. 5; weight, 4½ pounds; received an injection of $\frac{1}{10}$ cubic centimetre of culture from the boric-acid solution.

December 1.—Eye clouded.

December 2.—Still slightly clouded, and the iris hyperæmic.

December 3.—Extensive iritis and keratitis.

December 5.—Eye apparently better.

December 6.—Eye again more cloudy; still severe iritis and keratitis.

December 7.—Still severe kerato-iritis.

December 9.—Same as December 6.

December 13.—Inflammation has extended over entire surface of cornea; severe hypopyon keratitis.

February 7, 1893.—Eye removed for section; apparently the same condition as on December 13.

December 13, 1892.—Gray rabbit, No. 6; weight, 4 pounds; received $\frac{1}{10}$ cubic centimetre in left eye from culture obtained from cocaine solution. This solution when first tested in October had shown no growth, but

when cultures were made again in December a decided growth was developed upon agar, consisting of long and short bacilli. In making the injection the capsule was accidentally punctured.

February 7, 1893.—When the eye was removed its appearance was almost identical with that of the boric and other cocaine eye,—viz., extensive kerato-iritis.

January 7, 1893.—Rabbit, No. 7; weight, 3½ pounds; cornea of right eye was scraped with a sterile knife-blade, and some of the boric-acid culture dropped on the abraded spot and rubbed over it.

January 9.—A slight injection of the blood-vessels in ciliary regions just above the point where the surface was abraded. A small cloudy spot, the size of a pins' head, formed about the centre of the line of abrasion.

January 12.—Eye normal.

January 7, 1893.—Maltese rabbit, No. 8; weight, 3 pounds; surface of cornea abraded and a few drops of the culture from cocaine solution rubbed in.

January 7.—Slight reddening in ciliary regions and cloudiness in cornea.

January 12.—Faintest cloudiness in cornea; otherwise quite well.

February 9.—Eye normal.

January 7, 1893.—Black Angora rabbit, No. 9; weight, 4 pounds; surface of cornea scraped and a few drops of culture from cocaine dropper rubbed in.

January 9.—Injection of blood-vessels in ciliary regions above the point where the surface was scraped.

January 12.—Inflammation has subsided; a very slight cloudiness above where the surface was abraded.

This experiment of scraping the cornea was repeated again on January 21, with exactly the same results as those recorded. Simply scraping the cornea produced a slight injection of the blood-vessels in the ciliary regions; not so much, however, as when the cultures were subsequently applied.

A summary of the results, arranged in a tabular manner, follows.

PIPETTES.

Unused pipette	No growth.		
Cocaine pipette	Growth on potato, agar-agar, and beef-broth.	Same germs as those found in cocaine solution; inoculation caused purulent irido-choroiditis.	Rubbing abraded cornea with culture produced moderate ciliary injection and slight clouding of cornea.
Fluorescine pipette	Growth on potato.	Inoculation caused slight iritis.	
Atropine pipette	No growth.	Pipette had been frequently cleansed with sublimate lotion.	
Pyoktanin pipette	No growth.		
Homatropine pipette	No growth.		
Eserine pipette	Growth on all three culture media.	Slight iritis caused by inoculation, which speedily disappeared.	
Boric-acid pipette	No growth.	This pipette had often been cleansed with sublimate after use.	

FLUIDS.

Boric-acid lotion	Active growth on all three culture media.	Inoculation into anterior chamber produced purulent irido-choroiditis.	Rubbing abraded cornea with culture produced moderate ciliary injection and slight clouding of cornea.
Atropine lotion	No growth at first; one month later active growth.	The growth—a fungus—was not used in inoculation, as it was of same nature as that obtained from the fluorescine dropper.	
Homatropine lotion	Growth on all three culture media.	Inoculation produced slight iritis, which disappeared in fifteen days.	
Cocaine lotion	No growth at first; two months later active growth on all three culture media.	Inoculation produced purulent irido-choroiditis.	Rubbing abraded cornea with culture produced moderate ciliary injection and slight clouding of cornea.
Fluorescine lotion	Fungus growth on agar-agar.	Not used in inoculation; growth same as from dropper.	
Bichloride lotion	No growth.		
Nitrate-of-silver lotion	No growth.		

The two eyes which had suffered most severely from the injections of the cultures—viz., from the cocaine and the boric acid—were removed and submitted to microscopic examination. As the lesions are practically the same in each, one description will suffice. The iris is infiltrated with leucocytes, and there is a larger layer of pus on its posterior surface, in some specimens practically filling the posterior chamber. The ciliary body and choroid are densely infiltrated with darkly-stained corpuscles, the retina is detached and infiltrated, and the papilla inflamed. In brief, there is purulent irido-choroiditis, with secondary involvement of the retina and optic nerve. We are indebted to Dr. William M. Gray for preparing these sections.

These experiments, in general and as far as they go, confirm the oft-repeated observation that solutions of the alkaloids contain mould-fungi,—*e.g.*, aspergillus glaucus, saprophytic bacteria, as the *B. fluorescens liquefaciens* and *B. aquatilis*, and *B. sarcina lutea*. They also confirm the observations which have been recorded, that these solutions, when they have been some time in use, and when proper precautions are not taken to sterilize them, may be contaminated with pathogenic micro-organisms which are capable of producing by inoculation into a normal eye a purulent irido-choroiditis.

Referring for a moment to the particular results, it is interesting that one of the two most virulent cultures was obtained from the boric-acid lotion, a culture which evidently contained pathogenic germs. The source of these micro-organisms may, perhaps, be explained by Franke's idea that they are introduced into the fluid by reason of the pipette coming in contact with the cilia or conjunctiva of an eye which contains pathogenic bacteria, and it is likely that this lotion was frequently used for irrigating inflamed conjunctivæ. It serves as an illustration of the well-known fact that boric acid is an antiseptic substance of very indifferent power, the minimum degree of concentration in a watery solution in which it is reliable, according to Miquel, being 1 to 13. In the solution with which we experimented the concentration was 1 to 32.

It is further interesting to note that the solution of eserine yielded no growth upon the culture medium, and that when it was injected into the anterior chamber it proved to be innocuous. This is somewhat in accord with some of Franke's observations, who found in a few inoculations from freshly-prepared eserine solutions, and also from those which were several days old, that the tubes remained free from growths. The eserine pipette yielded a growth of long and short bacilli and micrococci, consequently its contamination must have come from outside sources which did not gain entrance into the fluid in the bottle.

If it be assumed that the culture from the fluorescine dropper was not due to a contamination (it did not appear until two weeks after the potato-tube was inoculated), it is worthy of remark that it produced a slight iritis when injected into the anterior chamber. Fluorescine solution has been much used in recent times to demonstrate the extent of corneal ulcers, locate small foreign bodies, and expose, by virtue of its power to color green, those portions of the cornea which are deprived of superficial epithelium, or any loss of substance in this membrane, whether it is caused by injury or disease. Hence there is a possibility that through this means micro-organisms might be conveyed to the eye and convert a simple abrasion into an unhealthy ulcer. In our experiment the fluid itself was apparently sterile at the first examination; later an abundant fungus growth was obtained.

That mere contact of the cultures with an abraded cornea is unlikely to produce serious inflammatory reaction or purulent infection is evident from our last four experiments, in which the infecting agent was rubbed into a wound of the cornea made with a sterilized knife. Ciliary injection and slight corneal infiltration occurred, which subsided in a few days without treatment, but destructive keratitis did not supervene in any case, although the same cultures injected into the anterior chamber caused purulent irido-choroiditis.

Hence we have a reason for the comparative rarity of untoward results from non-sterile solutions which are so frequently (and almost of necessity) used in eyes manifesting all manner of lesions, but in which the anterior chamber is not opened.

They also furnish additional evidence that unclean solutions which find their way into the anterior chamber—*e.g.*, after an operation—are capable of speedily originating a destructive inflammation of the uveal tract, terminating in panophthalmitis, and emphasize the importance of securing perfect sterilization of *any* lotion, especially of cocaine, which is to be used in a case requiring corneal section, and that boric-acid solution which is not freshly prepared (15 grains to 1 fluidounce) may be the medium of the most virulent contamination.

SOME POINTS IN THE SURGICAL TREATMENT OF SIMPLE ULCER OF THE STOMACH.

Read before the British Medical Association, August, 1893.

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CASES of perforation of the stomach due to simple ulcer group themselves into three classes.

1. Where no adhesions whatever have formed around the base of the ulcer, so that the contents of the organ pass freely, and at once, into the peritoneal cavity; or where, if any adhesions have formed, these are so slight that they readily give way, producing a similar result. In these cases the perforation is usually found on some part of the anterior surface of the stomach.

2. Where adhesions have formed between the stomach and some adjacent organ (these adhesions may have formed before any perforation has occurred), or where the stomach is in close contact with some other organ; the leakage due to perforation may be so gradual that time is allowed for adhesions to form and protect the general peritoneal cavity. In either case a localized peritonitis will be set up, and any resulting suppuration will be shut off from the rest of the peritoneum. In these cases the perforation is more commonly met with at the posterior surface of the stomach, where its relations to adjacent parts are more intimate than on the anterior surface.

3. Those rarer cases where adhesions form between the stomach and some hollow viscus or serous cavity, and perforation opens, for instance, the colon, pleura, or pericardium.

It is of the first class alone—viz., those where the peritoneum is rapidly invaded—that I wish to speak to-day, as the clinical progress of these cases is essentially different from that in the other division, and the surgical treatment of each class has to be conducted on a different principle. In the cases where the peritoneal cavity is suddenly invaded as the result of perforation of a gastric ulcer, our aim is to close the perforation and cleanse the peritoneum. In cases of localized suppuration due to perforation, the resulting abscess has to be treated on the general principles that guide us in the management of any such localized peritoneal suppuration, whether caused by a perforating gastric ulcer, or by a similar perforation of the vermiform appendix; while in the last division surgical treatment has to be conducted according to the exact nature of each case.

For treatment by operation to be of any avail in the cases now under consideration, it is absolutely necessary that it should be undertaken as soon as possible after perforation has occurred; delay of a few hours may make just the difference between success and failure, not only by permitting an extension of the intraperitoneal mischief, but by allowing the patient to get into a condition of shock and exhaustion unfavorable for the proper performance of the operation. It is, therefore, of the utmost importance that those engaged in general practice, under whose care such cases first come, should be keenly alive not only to the symptoms indicating so grave a peritoneal lesion, but to the necessity of taking immediate steps for its repair. I propose, before speaking of the operation, to read notes of a case that was under my own care, and to refer to the records of other cases illustrating the symptoms and progress of this terribly fatal condition. I was asked by my colleague, Dr. Saundby, to see the following case, that had been admitted under his care, and which, in his opinion, was one of perforated gastric ulcer requiring immediate operation. S. T., aged seventeen, admitted February 2, 1893, in a condition of collapse, and with the following history: Her friends stated that on the day previous to her admission she vomited some coffee-colored matter, that this occurred again on the following morning, and that at two o'clock in the afternoon, whilst washing clothes at a tub, she was suddenly seized with a very severe pain over the pit of the stomach, followed almost at once by pain over the lower part of the abdomen and under the left breast. The pain was intensely severe, and her friends said "she tore at herself in consequence of it." Pressure over the abdomen increased the pain. She speedily became collapsed, and was admitted into the hospital at 3.30 P.M., one hour and a half after perforation had taken place.

On inquiry as to her previous history, it was ascertained that during the last three weeks she had vomited after food, but that there had neither been any blood with it, nor even the coffee-colored material that she vomited during the present attack. It was also stated that she had had an attack of vomiting three months ago, but there was no history of pain after food, nor had she been at all anæmic.

On admission she was found to be pale and collapsed, her face was perspiring, and though her expression was anxious there was nothing about it that was typical of an abdominal "facies;" her legs were drawn up, and any movement caused pain. The abdomen was

not distended or tympanitic; the abdominal muscles were rigid, and the pain she complained of was increased by pressure. This pain, however, was not localized, but was present all over the abdomen, its intensity being greatest under the left breast in the region of the heart; she vomited several times; the vomited matter was found to contain blood, mucus, and starch granules. Her pulse was fair in character, and varied from 90 to 100. The temperature was subnormal. At 5.30 P.M. the abdomen was opened above the umbilicus just to the left of the middle line, and the peritoneal cavity found to contain gas and some turbid fluid. The stomach was seen, and after some difficulty a perforation was found on its anterior surface near the lesser curvature and close to the cardiac orifice. This, which was almost large enough to admit the tip of the little finger, was situated in the centre of a dense mass of induration, the diameter of which was about an inch and a quarter. The stomach was brought as near to the surface as was possible, and fine sutures were passed through the peritoneum in the neighborhood of the perforation; these, however, would not hold, and finally three stout silk Lembert sutures were inserted through the peritoneal and muscular coats well clear of the induration and the stomach wall on either side of this was drawn together so as to obliterate the perforation. The peritoneal cavity, which was apparently generally contaminated by the contents of the stomach, was washed out as thoroughly as the condition of the patient would allow, the wound closed, and a glass drainage-tube inserted between the liver and the stomach. She gradually got worse after the operation, and died on February 4, 1893, forty-five hours after it was performed. The post-mortem examination showed a general and suppurative peritonitis. The stomach was removed and the position of the perforation verified. This was completely occluded by the stomach-wall that had been drawn over it by the sutures.

The true value of operation for perforated gastric ulcer has yet to be determined, and it is only by a careful record of all cases in which it has been performed that we can provide material on which to base any conclusion; experience alone will show in what cases we may carry out this line of treatment with any reasonable hope of saving life. In the case under consideration there are several points worthy of notice.

1. There was nothing in the previous history that pointed with certainty to the fact of this patient having had a gastric ulcer for any time; it is true that she had vomited at intervals during the past three weeks, but there had not been any pain after food or blood in the vomited matter. This, however, is just the history of so many cases where sudden perforation of a gastric ulcer has taken place; indeed, from an examination of the records of a number of such cases, it is exceptional to find that there have been previous symptoms suggestive of gastric ulcer.

This absence of previous symptoms may be accounted for by the fact that a good deal of pain may be caused by the localized peritonitis and resulting adhesions that are so frequently met with in cases of gastric ulcer. But these are exactly the cases where a sudden perforation is unlikely to occur, for if leakage takes place it causes a localized and not a general peritonitis.

2. The position she was in at the time that perforation occurred must have favored the passage of the contents of the stomach into all parts of the peritoneum, thus starting at once a wide-spread inflammation of that sac.

3. When seen three hours after perforation had taken place some of her symptoms were less marked than one would have expected with an extensive perforation. Though there was evidently considerable shock, there was an absence of the extreme anxiety of face so often associated with a severe peritoneal injury. The pulse was comparatively low in rate and fair in volume. There was no abdominal distention, and the pain was widely distributed all over the abdomen. These modifications in the symptoms can, however, be readily accounted for by remembering that sufficient time had not elapsed to allow the symptoms of peritonitis to be well developed. The opportunities for watching the early effects of perforation are necessarily few, and one's ideas as to the severity of the symptoms are based on the conditions seen in cases where this lesion has taken place sufficiently long to allow the symptoms of an acute peritonitis to be well developed. In looking over the records of these cases I find that wherever the mode of onset is noted it has been sudden, no matter what the antecedent symptoms may have been. In nearly all cases recorded some mention is made of the sudden invasion of this lesion. The symptoms grouped under the head of shock were present in greater or less degree in all. Vomiting, though a frequent symptom, was by no means always present. Abdominal pain and tenderness, increased by pressure, were nearly always present; indeed, one can hardly

understand their being absent, yet in one case, though there was acute pain, this was relieved by pressure; in another there was very little pain but some tenderness on pressure; in another no pain was caused by pressure, and in another the pain, which shifted about, was relieved by firm pressure. Abdominal rigidity in the early stage and distention later on were frequently noted.

The duration of the cases varied from seven hours to five days, most of them terminating under twenty-four hours, a significant point to bear in mind when considering what prospect of relief surgery can offer. When, therefore, we consider that the chances of recovery after perforation are practically *nil*, we must feel that, provided the condition is not so bad as to forbid operation, some attempt should be made to place the patient in a more favorable position, even though the chance of success is but slight.

What, then, is the *technique* of such an operation? Every means must be taken to diminish the shock it will necessarily cause, and to effect this the temperature of the room should be high, the patient's limbs and thorax wrapped in cotton-wool and well covered with blankets; and, if the character of the pulse is bad, a brandy enema should be given shortly before commencing. The best position for the incision is above the umbilicus and just to the left of the middle line, so as to miss the falciform ligament. On opening the peritoneum it is possible that positive evidence of perforation will at once be manifest,—viz., by there being air in the peritoneum, together with fluid from the stomach, causing signs of more or less inflammation, according to the time that has elapsed since perforation took place. In searching for the perforation,—and assuming, as seems probable, that it is situated on the anterior surface of the stomach,—it is well to bear in mind that the anatomically anterior surface—that is, the portion between the attachment of the gastro-hepatic omentum and the great omentum—is only anterior in the undistended condition of the organ, and that it becomes, when the stomach is distended and its position altered, practically an upper surface. Consequently that portion of the organ first met with on opening the abdomen will be at no great distance above its greater curvature,—in other words, the lower part of the anterior surface,—a position where perforation does not often occur. If this is regarded as representing the whole anterior surface, it is very unlikely that an ulcer will be seen, the fact being that the finger must be carried along this surface upward and to the back until, far away from the abdominal incision, that portion of the anterior surface near the lesser curvature is found; here, experience teaches us, ulcers frequently perforate. The practical importance of this is that, while we rightly describe the ulcer as being on the anterior surface of the stomach, we must not necessarily expect to find it immediately beneath the incision, for, owing to the alteration in the position of the organ by distention (and the history of many of these cases shows that they often follow a meal), it may be well out of sight and by no means within convenient reach.

Further, a want of recognition of this fact may account for the statement in some of the reported cases that the ulcer was on the posterior surface of the stomach, when from the notes it must have been on the anterior surface, even though its exact situation may have been at great depth from the anterior abdominal wall. Obviously, if perforation occurs through the posterior wall, we can only reach it by first forcing a way into the lesser sac of the peritoneum. In the case on which I operated I was surprised to find that an ulcer on the anterior surface could be so far away from the incision and so difficult to bring forward for suturing. Having found the perforation, the next step should be the complete removal of the contents of the stomach. This may be effected by means of a large tube and funnel and some warm water. In some cases the already existing opening at the seat of perforation may be sufficiently large to admit the tube, or, if not, it should be introduced through the œsophagus, the hole in the stomach being closed either by seizing it between the fingers or holding a sponge over it. The advantages of thus clearing the stomach are evident when we remember that it is frequently full when perforation takes place, and that the resulting shock at once stops digestion. This quantity of half-digested food, if left, will not only severely test the line of suture, but will in course of time cause movement in the stomach wall, or set up vomiting, thus interfering with that complete rest so necessary for repair.

Various suggestions have been made as to the best way to treat the perforation, and, while it may not be possible to follow out one plan in all cases, we must favor that method which, while it is efficient, will make the least demand upon the patient's power of endurance. The most radical method is to excise the ulcer with its indurated base, and then suture up the rent. This plan, however, does not commend

itself favorably to me for various reasons: 1, It necessitates the removal of a considerable portion of the stomach wall; consequently the difficulty of efficiently closing this will be great. 2. It must cause free hemorrhage, and the patient is not in a condition to stand any loss of blood. 3. This hemorrhage will cause a waste of valuable time.

Closure of the perforation without its removal seems to offer in many cases the most satisfactory plan of treatment. To carry this out the stomach must be drawn up as near the surface of the body as possible, to facilitate which it may be necessary to enlarge the abdominal incision. In applying sutures—which should be of the Lembert type—we must remember that for a considerable distance around the actual perforation the stomach wall is so indurated that it is impossible to cause sufficient inversion of this part so as to get the peritoneal surfaces in opposition; nor, indeed, will the tissues bear the strain put upon them by the sutures. It is therefore necessary to go outside this area of induration in order to get a good hold of the stomach wall at a point where it can be drawn over the orifice so as to meet the peritoneum from the opposite side. Three Lembert sutures of stout silk passed in this way in the case I have recorded buried the perforation, together with its surrounding induration, and completely shut off the cavity of the stomach from that of the peritoneum. I would suggest, however, that in addition to these deep sutures some small superficial ones should be inserted in the intervals between them, and that a similar precaution should be taken at each end of the resulting puckering.

Suturing having been effected, our attention must be turned to cleansing the peritoneum, and here the question will arise as to whether it will be necessary to drain the pelvis. Bearing in mind that fluids tend to gravitate into that cavity, and the extreme difficulty there is in being sure that every particle of foreign matter has been removed, it seems probable that, at any rate in most cases, pelvic drainage is desirable. If the operator, therefore, intends to use the drainage-tube here, he had better at this stage of the operation make the necessary incision for it. This will also facilitate the thorough flushing of the peritoneum, which should be carried out in the most liberal way and with volumes of hot water, the intestines being moved about and the current directed in such a manner as to remove, if possible, every particle of the extravasation. There is no doubt that this is a most important step in the operation, and one that must be persevered in as long as the anæsthetist considers the patient can stand it, unless the operator is satisfied before any such prohibition is necessary that sufficient has been done. All excess of fluid should then be removed, the drainage-tubes inserted, and the wounds sutured in the usual way. I feel that it is necessary to emphasize the importance of this thorough flushing of the peritoneum not only from the fact that the chief cause of failure after operation has been suppurative peritonitis, but on account of a somewhat natural feeling on the part of the surgeon that, after the time already spent in finding and suturing the ulcer, the patient's condition will not permit more than a limited amount of flushing, which, while it satisfies his conscience, is of no real value.

It is on every ground undesirable to have a patient die either during an operation, or very soon after, as an immediate result of it. But it must be understood that a clean peritoneum is the patient's only chance, and therefore the anæsthetist must most carefully watch the general condition of the patient, and only stop the surgeon if he considers that further time spent on the operation will prove fatal.

Two other methods of treatment have been suggested, and these may be considered under one heading. By these the perforation is brought to the abdominal incision and fixed there either by suture or a bone plate, so as to leave a gastric fistula. While such a procedure may be the only possible course to take in some cases, it is hardly the one to follow where a more complete operation can be done, for if temporarily successful, it necessitates a second operation later on for the closure of the fistula.

Before closing this paper I should like to suggest whether, considering the dangers incident to a gastric ulcer, it would not be well in a case where the symptoms are unequivocal to seriously consider the question of opening the abdomen with a view to the treatment of the ulcer. This might in some cases be of such a size as to permit of excision, or the stomach wall might be drawn across it so as to prevent perforation; or why might not its base be strengthened and protected by grafting on it a piece of omentum carefully removed for that purpose? Unfortunately, however, the cases where surgical treatment could be best carried out are just those where, owing to the absence of adhesive peritonitis, symptoms are either entirely absent or do not point so clearly to the nature of the case as to warrant even the slight risk of an exploratory incision. Moreover, we must not lose sight of the fact that

ulceration of the stomach frequently occurs at several points, so that the difficulties in the way of dealing successfully with such cases are so great as to offer but little hope of benefiting them to any extent.

A PAPER INTRODUCTORY TO THE DISCUSSION ON THE RADICAL CURE OF HERNIA.

READ BEFORE THE BRITISH MEDICAL ASSOCIATION, AUGUST, 1893.

BY RUSHTON PARKER, M.B., B.S., F.R.C.S.,
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THE radical cure of hernia has been attempted, and no doubt attained, by various means, among which herniotomy holds a conspicuous place. My business today is solely with such means as I have myself employed, and any technical knowledge that I may have acquired having been derived from the practice of herniotomy, dealing with the projecting sac in some manner intended to abolish the offset of the same from the peritoneal cavity, to obliterate the path along which viscera may protrude, to do away not only with the existence of a hernia, but, if possible, with all further tendency to it.

Results as complete as can be wished, and as enduring as have been possible, during the twenty or more years that surgeons have been thus at work, are abundantly known, and are the monopoly of none. But I know of no method that is not open to failure in certain severe and obstinate cases that most require it, some of which still die unrelieved after, may be, several operations, each apparently more successful than the last, but all proving but of temporary, and sometimes brief, duration. I think, therefore, that those surgeons are the best guides who do not profess too much, or lead others to form exaggerated expectations.

The two factors with which I am concerned, then, are herniotomy for access and reduction, and the treatment of the sac for cure. My herniotomies up to date have numbered two hundred and ninety-one, and will be found recorded to the number of two hundred and eighty in the current numbers of the *Provincial Medical Journal* in eight tables, including an analysis with percentage of deaths during a period of nineteen years. Omitting fifteen before I made systematic attempts at radical cure, and twenty-five that proved fatal from strangulation, there remain for cure about two hundred and fifty operations in two hundred persons in whom radical cure was undertaken.

Of sixty-one strangulated, thirty were inguinal, twenty-one femoral, and ten umbilical and ventral. No deaths are included here, as they resulted from the effects of strangulation and not from the attempt at radical cure. In one hundred and ninety unstrangulated there were eight deaths, or 4.2 per cent., attributable to the operation. To go further into detail of the one hundred and ninety unstrangulated, one hundred and thirty-seven were inguinal in one hundred and seven persons, with five deaths; twenty-five were femoral in 20 persons, with one death; twenty-eight were umbilical and ventral in twenty-four persons, with two deaths. Of the one hundred and thirty-seven inguinal cases, twenty-two were infants and children under twelve years (one strangulated, aged three weeks, in which a perfect radical cure has lasted nine years, and twenty-one unstrangulated, with one fatality).

To sum up the varieties, there were one hundred and sixty-seven inguinal in one hundred and twenty-eight persons, forty-six femoral in forty-one persons, and thirty-eight umbilical and ventral in thirty-three persons.

Any trustworthy estimate of the proportion of failures I am unable to make, and can only say that those which are known to me are a very small minority in femoral and inguinal cases. The proportion in umbilical cases is, however, considerable.

Passing by the details of herniotomy, in which the opening of the sac *can* be dispensed with only where the contents are reducible and *must* be performed in most other cases, there remains to consider the treatment of the sac. In my hands this has been confined to two processes,—ligature in less than half, and some sort of suture in more than half.

My own first attempt at radical cure by means of herniotomy was made in June, 1879, in a case of inguinal omental hernia in a man aged twenty-eight, the sac being treated with a silk suture. A perfect radical cure resulted, and was confirmed ten or more years after. The following year I did a similar operation on a very similar case in a man aged twenty-four, but the hernia returned in a short time. This not proving a satisfactory or trustworthy method, in my opinion at the time, it soon after occurred to me to practise ligature of the sac high up, and on the 4th of January, 1881, I did my first case, a femoral omental hernia in a woman aged forty-five, the narrow pedicle of which was tied with carbolized catgut with the neck of the sac, and which healed by first intention under a single dressing, remaining a complete success when last seen, a few years

after the operation. From this date I systematically ligatured the neck of the sac in every case of hernia on which I operated, whether inguinal, femoral, or umbilical, and mentioned the practice to my neighbors, who freely followed my initiative. I soon learned that similar operations had been previously performed elsewhere, notably by Annandale at home, and by Czerny abroad. It treating the neck of the sac by ligature, it was my practice to expose and open the spermatic cord in the inguinal region, and to strip the hernial sac from the vessels and duct included with it in the cord. When the sac was shut I stripped it all up with its blind end, either opened or unopened as appeared convenient.

I did not make a practice of stripping up the whole of the sac when it reached far down into the scrotum, but only enough to get hold of and enable me to reach its offset from the peritoneal pouch, in that case cutting across the peritoneal sac somewhere about the external abdominal ring, and leaving the part below to take care of itself. I have once or twice taken pains to close the tunica vaginalis testis, when so left open in the scrotum, but I soon discontinued this perfectly useless and superfluous proceeding. Similarly in the inguinal herniæ of women I have left undisturbed the labial portion of the sac when it extended so far. I did not usually attempt to approximate the pillars of the ring, unless widely divergent during the period in which I used ligature for the sac, and am not aware that the result was vitiated by the omission, but in some cases I did so, and, I think, with advantage. In femoral hernia the sac, and sometimes its coverings, were tied as high as could be reached, no attempt being made to approximate by suture the edges of the fascial opening.

Some of the details of these cases, their size and other characters, may be seen at a glance at the tables I have alluded to as in course of publication. Some of the really severe cases have succeeded well, and some of the failures have been in cases which appeared simple, but in the main the results of ligature of the sac in adults, whether inguinal or femoral, have been gratifying. The failure appeared to be owing to flabbiness of the abdomen in some and tight distention in others. It must also be allowed that improvements in the details of antiseptic practice, not merely in their general application but also in their special application to hernia, has enabled the operations of more recent years to surpass in success those of an early period. It certainly is, I think, a factor in my individual experiences.

Another cause of failure has been, I think, an insufficient length of time spent in lying down after the operation. It is often difficult to persuade hospital patients to submit to what they are apt to consider useless sacrifice of time when they feel well, and fancy they must be fit again for work; and it often happens that want of room leads to a too early discharge of the patient who will not lie quiet at home for due consolidation of the reunited parts, but wants to be up and doing. This was often the case during my assistant surgeoncy, when it was difficult to have patients retained in hospital after they had healed from their wounds. But private patients are more easily managed and controlled in a matter of this kind, and almost complete success has resulted accordingly in my cases.

In the year 1881 I operated on two boys of seven and eight, each with a large inguinal hernia, but in both recurrence took place. I then regarded the operation as perhaps not well suited to that character of case; but now I regard infancy and childhood as the time of life above all others in which herniæ can best be treated even if of large size. My only fatality under twelve years of age was during the time when I still employed ligature, and was that of a child aged seven weeks, in whom the whole of the small intestine had descended into an inguinal hernia.

Let me now pass on to the treatment of inguinal and femoral herniæ, devised by Professor Macewen, and published by him in 1886 and 1887, but I regret not undertaken by me till September, 1888. As soon as ever I learnt the details of this method, it commended itself to me as vastly superior to the method by ligature, which I had previously regarded as both simple and perfect. Macewen's method is sometimes difficult of execution, and may appear to some to be rather complicated; but it is physiologically so sound and reasonable that I at once adopted it.

If the sac is to be stripped up, I consider Macewen's plan of hauling it up and fixing it inside the abdominal wall far superior to that of ligature, and not, like that, devitalizing the stump. Of course we know that perfect asepticity prevents sloughing of even a devitalized stump; but the risks of failure seem to me to be less by adopting Macewen's method, which I have practised in considerably more than a hundred cases. I have had, however, my disappointments with Macewen's method in the form of obstinate suppuration about the suture employed to draw up the sac, even in cases where union by first intention had previously

occurred. I used at first the green catgut, which I understand is prepared by sulphurous acid, and began to fear that it was imperfectly sterilized. I then used sterilized silk with the same result. It was not till after I had practised the operation for four years that it occurred to me that it was due to a slight modification I had ventured to make in the method of fixing the sac to the abdominal wall. Macewen draws up the thread that is tied to the end of the sac and laced through it singly through the abdominal wall and then fastens it off by passing it several times through the external oblique. I thought it would be a better fastening to leave the thread double and bring each end through a separate puncture in the abdominal muscles, tying both together in a knot. This, although a perfectly secure attachment of the sac to the inside of the abdominal wall, was, I believe, the unforeseen cause of so pinching the muscular tissue as to set up physical irritation even in the aseptic state of the wound and tissues. The result was a serous discharge, which later became purulent, with the establishment of a sinus that could only be closed after fishing out the offending suture. I mention this in detail because the modification on which I ventured is one that may daily occur to and be acted upon by others; but it is a drawback instead of an improvement; and I can only say that I now keep as closely as possible to the details advised by the originator. I adopted also the chicken-bone drainage-tubes, but I have since discarded the use of drainage-tubes almost entirely, in common with the custom now so generally adopted. Since I adopted strictly the method of Macewen as described by him I have had little or no trouble with the thread holding up the shrunk and puckered sac inside the abdominal wall. This thread I use of green catgut, than which I cannot imagine anything more perfect. I have no doubt that silk properly sterilized is equally good, and should not hesitate to trust to it; but the inventor mentions catgut, and that is why I keep to it. I also approximate the pillars of the ring by overlapping the outer outside the inner as nearly as I can according to Macewen's injunction. Much as I like this operation for adult femoral and inguinal herniæ, I am bound to own that in a few inguinal cases recurrence has followed. Out of eight cases under twelve treated by ligature during a period when the dressings were not so well managed as they are now, one case died and there was one recurrence; while out of thirteen treated by Macewen's method I know of no recurrence, and the simplicity of the recovery and perfection of the healing, due partly, no doubt, to improved methods of dressing, has convinced me that this is the time of life at which to operate for hernia if it can be managed.

The younger the patient among adults the better and easier is the success; but great as is the success among young adults, it is far outstripped by that met with in infants and young children.

Nothing could be more satisfactory than the curative effects of ligature simply applied to the stripped peritoneal lining of the sac in several cases of umbilical hernia.

One such case, a woman aged fifty-seven, operated on in July, 1881, lived free from hernia till January, 1892, when she died from apoplexy.

Only a fortnight ago I resorted to ligature with green catgut in the strangula-umbilical hernia of a man aged fifty. To prevent slipping I passed a suture of the same material through the tied neck of the sac and around the ligature fixing it in its place. But although perfect aseptic healing by first intention took place, there accumulated some sanious serum around the tied stump of the sac, due largely, I think, to the diminished vitality of the stump thus constricted. On the smallest scale there can be no objection to this strangulation of peritoneum and fascia; but in large masses the strangulated tissue suffers and sloughs if septic elements get in.

But in obstinate umbilical cases the ligature proved so inadequate to prevent a return of the hernia, although succeeding admirably for a while, that I have had to resort to a method of suture in place of it.

There only now remains to me to mention the method I adopt for umbilical hernia after having in vain tried ligature in certain obstinate cases. It simply consists in covering the aperture with the sac and its coverings arranged in two layers, in what I call a double-breasted-coat fashion. Such a garment is sometimes doubly buttoned, inside as well as out. In arranging for the closure of such a hernia I place one-half of the sac and its coverings inside the other half and sew them together; the two halves, or upper and lower, according to taste. I have done it both ways. Two series of sutures are first inserted, one along the free edge, and the other along the base of the flap that goes undermost. Then the sutures at the free edge of the inner flap are passed from within outward through the base of the outer flap and tied outside it. The sutures already at the base of the inner flap are

then passed through the edge of the outer flap and there tied. This holds together the two halves of the sac in two layers, and it is well not to tie the sutures too tight. It has succeeded well in small cases, but I am bound to confess that in some of the severest ones, in which it is most needed, I have met with recurrence.

I have operated altogether in umbilical and ventral herniæ over forty times in some thirty-six patients. Thirteen were strangulated, with three deaths; twenty-eight were unstrangulated, with two deaths. The two fatal cases were women, both in good health at the time of operation. Peritonitis resulted in both in spite of what I considered as the greatest care I could possibly take; but one was complicated by pregnancy, and by the ligature and removal of very large masses of omentum.

I therefore feel that the difficulties in some cases in the way of a permanent cure of umbilical hernia are great, though simple and harmless healing may be brought about. This is a great pity; for such cases are greatly in need of radical cure.

In a case of strangulated ventral hernia of traumatic origin I found no sac to deal with, and so closed the opening in the fleshy abdominal wall by three silk sutures so arranged as to produce overlapping of the lower edge outside the upper, after the manner used by Macewen to close the pillars of the ring in inguinal hernia. The operation is recent, but so far appears to be a cure, in addition to having saved the patient's life.

In my last umbilical case, on July 18, 1893, a strangulated hernia in a man aged fifty, occurring in private practice, I once more employed a ligature to the neck of the sac, which was too thin to be advantageously treated by my method of double-breasted suture. To fix the ligature, sutures were placed around it and through the sac before and behind. Both sutures and ligature consisted of green catgut, and the patient is now convalescent, but in some respects still under treatment.

The conclusions I venture to draw from the experience I have had are, that the radical cure of inguinal hernia in infancy and childhood can be attained with ease almost as a matter of certainty, and that accordingly my best efforts should be directed to urge operation when the disease exists at this period of life; that the cure of inguinal and femoral herniæ in men and women is attainable in the large majority of cases, the exceptions being sometimes large herniæ, at others small; that Macewen's operation is the best for inguinal and femoral herniæ at all periods of life; that the umbilical hernia of adults is capable of radical cure in proportion, which is unfortunately much below that of success in inguinal and femoral, and far short of the urgent requirement of many of the cases, and that the radical cure is, as a rule, applicable to strangulated and unstrangulated herniæ alike.

THE COOL-BATH TREATMENT OF ENTERIC FEVER.

READ BEFORE THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, AUGUST, 1893.

BY C. STENNETT REDMOND, L.R.C.P.I.

Introductory: Object of Paper—Résumé of Origin and History of Bath-Treatment—Brief Quotations from Various Writers—Drs. Broadbent, F. Taylor, Strumpell, Byrom Bramwell, Cayley, and Hare—Rationale of: Indications for, and Method of carrying out—Advantages of: notably Absence of all Local Complications and Consequent Greatly-Diminished Mortality—Disadvantages: Difficulties of carrying out; Popular Prejudice against; Relapse more frequent—Contra-indications: Intestinal Hemorrhage; Perforation; Cardiac Failure—Summary of Four Cases successfully treated—Reference to Dr. Barr's Treatment by Continuous Immersion—Conclusion.

MY object in venturing to submit this paper for the consideration and, I hope, the approbation of this the annual representative congress of our Association is not so much because I am able to adduce any new facts, or arguments, in favor of the principle, but (*a*) to add my limited quota to the yearly increasing aggregate mass of clinical evidence in its support, and (*b*) to endeavor to enlist the powerful moral influence of this meeting, which may be regarded as the court of appeal of the profession, on behalf of all of its members who may be desirous in suitable cases to advise and carry out the bath treatment, but who are, not unfrequently, deterred (*a*) by a somewhat natural hesitation to incur the very grave responsibility of pressing on a patient's friends a mode of treatment often disparagingly termed "heroic," and, further, one in the practice of which they may have had no previous experience, or even, as to the value of which, they may be themselves not entirely divested of some scepticism; (*b*) and chiefly by the difficulty of combating and overcoming the very wide-spread prejudice—I may even say repugnance—which exists in the minds of the general public—not excepting the more educated class—against a mode of treatment so diametrically opposed to hitherto accepted principles; and I submit that, under such cir-

cumstances, general practitioners like myself would be in a position to advise its use with greater confidence, if able to adduce the fact that the proposed mode of treatment had the united sanction and approval—the "imprimatur," I may say—of a representative assembly of the profession such as the present.

Let me quote a personal experience: my last case, the eldest son of a man in a good position, developed a high initial temperature, and directly I suggested the bath I was met with the objection that "it was a fad" of mine, and that he knew of no other doctor who approved of or practised it, a fair argument, and one peculiarly difficult to explain, especially its ethical part. However, I got my way by plainly and firmly telling the patient's father that I would carry out the expectant treatment if he insisted on it, but that he must bear the full responsibility for the issue. The result was the steady and uncomplicated progress to recovery of a case which at its onset seemed likely to develop grave symptoms.

Though more generally identified with the name of "Brand of Stettin," the bath treatment is, undoubtedly, English in origin, having been first suggested and practised by Dr. Currie, of Liverpool, in 1787. After his death, however, it soon lapsed into desuetude, and it was not until the year 1861 that it was revived by Brand, and since then gradually rose in favor until it has now become the established practice of the German school.

In England, however, the bath treatment has unfortunately not made much headway, being regarded rather as "an heroic mode," and one, therefore, to be adopted only as a *dernier ressort*, in the most desperate and hopeless cases, altogether overlooking the fact, as pointed out by several writers, Broadbent among others, that its great value lies in the fact that it obviates or, as it were, anticipates the baneful effects of continued pyrexia, and is, in the fullest sense of the phrase, a prophylactic rather than a curative agent.

"The great source of danger in enteric fever," says Broadbent, "is the prolonged high temperature; and it is to this rather than to the fever poison or process that are due the prostration of the nervous system and the weakness of the heart, which are the most frequent causes of death." To keep the pyrexia in check, therefore, is to minimize the danger attending this disease, and such is the rationale of the cool bath. The bath simply extracts caloric from the patient's body, which is cooled down from 1° to 3.5° F., while, as I have frequently verified, the temperature of the water is proportionately raised.

Such, briefly, is the history and principle of the bath treatment; but before proceeding to discuss its indications and mode of carrying out, it seems to me desirable to quote a few extracts from well-known writers in its support.

Dr. Broadbent, writing in "Quain's Medicine," says, "Without going so far as to say that Brand's rule should be obeyed absolutely and in all cases, *many lives would undoubtedly be saved were cold bathing at once put in practice whenever a temperature of 103.5° or 104° F., in the first few days, shows an attack of more than average severity. It is of the utmost importance that this should be done early, so that the pyrexia may never get the upper hand*, and that the intestinal lesions may, if such a thing be possible, be modified. And no patient should be deprived of the chance which is afforded by the bath, when, at any stage of the disease, life is threatened by hyperpyrexia or its consequences, such as violent excitement, sleeplessness, restlessness, or nervous prostration.

"It must be taken as an established fact that the mortality of enteric fever is very greatly reduced by the bathing, and it is the duty of the medical attendant to insist on its uncompromising employment."

Dr. Taylor ("Manual of Medicine") writes, "The influence of a single bath is generally most pronounced,—headache, delirium, stupor, thirst, are at once diminished; and, when the system is thoroughly carried out, by frequent baths at low temperatures, the mortality has been markedly reduced. Local complications are also much less frequent."

Strumpell "regards it as the duty of every physician who undertakes to treat a severe case of typhoid to try his best to have the baths employed," and affirms "that there is at present no other single method of treating typhoid which has so numerous and evident advantages for the patient."

Dr. Byrom Bramwell ("Studies in Clinical Medicine") writes, "Personally I have no experience of it, but the statements published in its favor seem to me very remarkable. I am disposed to think it a most valuable plan of treatment, and that its advantages are by no means sufficiently recognized in this country."

Dr. Bramwell also quotes the following remarkable testimony by M. Glénard: "When treated from the beginning by this method the malady is as monotonous for the physician as for the patient. Neither the one nor the

other has misgivings concerning the cure, which comes to pass without incident after a number of baths, varying from sixty to one hundred, and after a duration of fever of from seventeen to twenty-five or thirty days."

Dr. F. W. Hare, whose opinion is based upon the observation of eleven hundred and seventy-three cases, treated in Brisbane Fever Hospital, from January, 1887, to December, 1889, has written to me, "Why the treatment has made so little headway in England and America is incomprehensible, the clinical evidence in its favor being simply overwhelming, and can hardly be seriously resisted by even the most prejudiced opponent. Certainly any one who has had experience of it would never feel justified in treating a case otherwise, unless under most exceptional circumstances."

Dr. Cayley, physician to the London Fever Hospital, has for many years identified himself prominently and successfully with the bath treatment, and his "Croonian Lectures," published in the *British Medical Journal* for November, 1880, afford a masterly exposition of its principles and practice.

With the exception, however, of a paper by Dr. Sidney Coupland, in the *Lancet* for 1884, so far as I am aware, no attempt has been made through the medium of the medical journals to popularize the principle and remove that prejudice the undoubted existence of which, both in the professional as well as the public mind, constitutes the chief obstacle to the more general adoption of a line of treatment the practical evidence in favor of which can no longer be doubted by, I venture to affirm, any rational man.

The indications for the bath are clear and brief: In every case where a temperature of 102°, 103°, or 104° F. is developed and maintained for a few days, with marked evening rise and no local lesion, as pneumonia, for example, to account for it, we may reasonably assume enteric as the most probable diagnosis, and the patient must be at once placed in a bath for ten or fifteen minutes, his temperature taken half an hour after, and thenceforth regularly every three hours, and the bath is to be repeated for a longer or shorter interval and at a higher or lower temperature, as indicated by the progress of the case, whenever the temperature rises to 102.2° F. in recto. This is the general rule, but it has to be modified from time to time in accordance with the exigencies of each case and the idiosyncrasies of each patient.

Thus, in some instances a tepid bath, at 87° F., or even 90° F., for thirty minutes, is better borne, and exercises an equally controlling effect upon the temperature, than a temperate one at 78° F., or a cool one at 66° F., for fifteen or ten minutes respectively in others.

Personally I prefer, when feasible, to use the tepid bath at 87° F. for as long a period as the patient can bear it without discomfort and the temperature is thereby adequately controlled. Even after the temperature has ceased to rise at any period of the twenty-four hours to the bath limit, but still continues above normal, a warm or a tepid bath night and morning for fifteen, twenty, or thirty minutes is both grateful to the patient, modifies the tendency to dehydration of tissue, and gives a healthy tone to the skin and its secretions.

The following *rules for administration of the baths* are compiled from various writers, and were rigidly adhered to in my four cases.

1. A temperature of 102.2° F. in recto calls for a bath, and it must not, as a rule, be permitted to rise higher without giving the bath, except patient is in a sound sleep.

2. The bath, long enough for patient to be at full length in, is brought close to the bedside, and patient carefully lifted in and out, in horizontal posture.

3. Half an ounce or an ounce of old pale brandy in two or three ounces of soda or aerated lime-water to be given first (in case of adult).

4. Patient always must pass water before being put in bath.

5. To be immersed up to the neck, the head to be constantly sponged, and the chest and extremities, not abdomen, to be gently rubbed by attendant.

6. The first bath to be given at 90° or 85° F. and cooled down by adding cold water to 75° or 70° F. If the patient bears it well, subsequent baths may be given at 80° F. and cooled down to 70° F. The cold water is poured over the patient's head and chest.

7. Average duration of bath, ten minutes; some say until patient begins to shiver; but if he begins to feel cold or gets uneasy, the bath must be cut short.

Where a patient is nervous, or bears the cool baths badly, he may be kept in tepid ones at 87° F. for fifteen, twenty, or thirty minutes, the more prolonged immersion producing the desired effect.

8. Lift patient carefully onto a couple of large soft bath-towels laid over a mackintosh sheet and rub him *briskly* dry, except abdomen, which dry gently, envelop him in a warm blanket and put in bed, covering lightly, and

give him a cup of warm coffee and milk or peptonized cocoa and milk.

9. Half an hour after take temperature, in recto preferably, when it should be 2° or 3° F. lower.

10. Take temperature every three hours, and as soon as it again rises to 102.2° F. repeat bath, except he is sleeping, when, as a rule, he must not be disturbed even if the temperature rises to 104° F., but bath deferred till he awakes.

11. Usually a bath is indicated every six hours. Sometimes, however, during the fastigium the pyrexia is so obstinate and uncontrollable as to call for a bath every two or three hours.

12. During the night baths are seldom called for, except by an extremely high temperature.

13. In case the bath lowers the temperature only 1° F. or less, or only for a short interval, it becomes necessary to lower its temperature to 60° F. (cool bath), or even 45° F. (cold), and lumps of ice may be put in the bath to cool it down with perfect safety (as was done in one of my cases).

In Strumpell's experience, baths below 73° F. are seldom needed. He regards 80° to 83° F. as the average.

14. If intestinal hemorrhage occur, baths must be discontinued.

The advantages of the bath treatment are,—

1. The baths diminish the fever by the direct absorption of caloric from patient's body, the water is warmed, the body is cooled in equal proportion, and there is a constant tendency to calm, natural rest, the patient as a rule sleeping between the baths.

2. Headache, stupor, and delirium almost always disappear as soon as the baths are given, and in cases where used from the onset, are rarely, if ever, present. The intellect continues clear, the patient remembers days and dates, and takes cognizance of what is going on around him; in fact, the well-known and miserable "typhoid state" is absent. This absence of delirium constitutes one of the chief, and, after the decreased mortality, the strongest practical argument in favor of the bath treatment, as evidenced by Dr. Hare's observations of nine hundred and thirty-four cases, with the occurrence of delirium in but seventy-one, or 7.6 per cent., compared with Murchison's experience of the "expectant" plan, under which it was present in sixty-seven per cent.

3. Sordes on lips and the characteristic typhoid tongue, dry, brown, hard, cracked like a piece of toast, are rarely, if ever, seen; thirst is lessened and the patient more readily takes and enjoys his nourishment. In fact, the irritable condition of the gastro-intestinal mucous membrane, so usually characteristic of typhoid, is materially modified; vomiting is rare, diarrhœa is often less marked, while the tonic influence of the baths upon the abdominal and intestinal muscular tissue materially lessens the often troublesome symptom of meteorism.

4. On the heart and respiratory organs the influence is most marked. The pulse diminishes in frequency and gains in tonicity; while the shock of the bath stimulates deeper inspirations, promotes expectoration, and as a consequence diminishes the risk of pulmonary complications whether acute or hypostatic.

5. The healthy action of the skin is maintained. "Dehydration of tissue" is very much lessened by direct absorption of water, and bed-sores are of rare occurrence.

6. On the kidneys a distinct diuretic action is often promoted, and this effect was noted in one of the writer's cases.

7. The mortality is reduced by fifty per cent., and in this lies the greatest material gain. Now, under the expectant treatment the death-rate has been variously estimated at from ten to twenty-five per cent. (during an outbreak at Hanley, Staffordshire, in 1892, sixteen out of sixty-nine cases died, or a mortality of 23.18 per cent.), but compared with even the lowest of these figures the bath treatment gives results hitherto regarded as unattainable.

Now, in Germany the treatment, as before stated, has become universal, and remarkable results have been attained, as many as four hundred cases in succession having been recorded, *without a single death.* It is not improbable, however, that some of them may not have been enteric at all, but simple febricula.

Be that as it may, Brand has published statistics collected from various sources which give most favorable, though less phenomenal, results. Thus the death rate is shown to be,—

	Per cent.
In family practice	0 to 1
In military hospitals	3 to 4
In consultation cases	3 to 4
In civil hospitals	5

In England, however, there is a tendency to regard German facts and German statistics, rightly or wrongly, as acceptable only with the proverbial "grain of salt;" and hence the treatment has made but little progress in British practice.

Fortunately, however, I am able, through the courtesy and with the permission of Dr. F. E. Hare, to quote the most remarkable and convincing evidence hitherto produced by any British physician, being the results of a most unique experience in the Brisbane Fever Hospital, and embodied in a paper read by him before the Queensland Medical Society.

From January 1, 1887, to December 31, 1889, eleven hundred and seventy-three cases were treated by him, with only ninety-two deaths, equal to a mortality of 7.84 per cent., compared with eighteen hundred and twenty-eight cases treated on the expectant plan during the preceding three and a half years, with a mortality of two hundred and seventy-one, or 14.82 per cent., and showing a net gain of, as nearly as possible, fifty per cent. in favor of the bath treatment. In an interesting analysis of the fatal cases, Dr. Hare shows conclusively that the diminished mortality under the bath treatment is due mainly to its influence in averting the tendency to death by exhaustion, pneumonia, coma, etc., conditions common to all febrile states, thus bearing out fully Brand's contention. Deaths from hemorrhage or perforation were slightly diminished under the bath treatment, 4.2 per cent. dying from these causes, compared with 5.2 per cent. under the expectant plan.

The disadvantages, or objections, are,—

1 (and mainly). The labor and expense entailed: two trained nurses and, in the case of men, a male assistant being needed, thus limiting its use in private practice to the well-to-do; but in hospital work this does not apply.

2. The wide-spread prejudice which undoubtedly exists among all sections of the English public against it.

3. The nervous dread which some patients have of the baths; but happily this is soon overcome by the relief experienced, so much so that I have seen such a patient watch his own temperature, and ask the nurse for the bath as soon as it got uncomfortably high.

4. Relapse is admittedly more frequent.

Dr. James Barr, of Liverpool, commenting upon the difficulties attending the general adoption of the bath treatment, aptly observes, "They are not insuperable either in public or private practice, and where human life is concerned no obstacle should be allowed to impede our path.

"A good many cases of typhoid fever are permitted to die from want of taking sufficient trouble to keep them alive."

Contraindications.—The only absolute ones are peritonitis, perforation, hemorrhage, and the advanced cardiac weakness sometimes observed in the later stages of the disease; and Dr. Broadbent considers neither albuminuria nor pulmonary complications prohibitive, and has seen "albumin disappear from the urine and pulmonary congestion disappear after a single bath."

Glénard (quoted by Bramwell) states that "neither age, sex, menstruation, nor pregnancy in any way modifies the treatment.

ILLUSTRATIVE CASES.

So far my experience has been limited to four cases, but I may claim some little clinical value for them, in so far as that they all recovered, and that at least one very valuable life would probably have been lost if treated otherwise.

CASE I.—One of my own boys, aged four years, in the evening of the fourth day, developed a temperature in axilla of 104.8° F., on the fifth day two records of 104° F.; on the sixth, three; on the ninth, four. The expectant treatment had been so far adopted, in addition to, first, cool sponging, and, secondly, the wet pack, but these means only reduced the temperature by 1° F., and for a very short interval, never more than an hour.

The aspect of the case being exceedingly grave,—the boy increasingly restless, delirious, with a dry tongue, parched lips, and continuously hurried respiration, 38 to 44, besides frequent diarrhœa, which, by the way, proved both troublesome and obstinate for nearly three weeks,—the question of the cool baths suggested itself to me, and after mature consideration with Professor Phillipson, who fully shared my view as to the gravity and urgency of the symptoms and danger to life, we decided, not, however, without some hesitation, I frankly admit, to try the baths, and at 1.30 P.M. on the ninth day, the temperature then being in axilla 104° F., while the three previous records showed 104°, 104.4°, and 104° F. respectively at eight, ten, and twelve in the forenoon, I gave the first bath at 80° F. for ten minutes, gradually cooling it down to 60° F. The relief was immediate and marked. An hour after he was asleep his temperature was 102° F. and respiration 30. At 4.20 the temperature again rose to 104° F., and a bath was given at 70° F. for ten minutes; at 6 P.M., temperature was 101° F. At ten it was 103.8° F., when bath was repeated.

I may here note that during the first fourteen days, Dr. Phillipson and myself were rather fearing some pulmonic complications, as, for example, pneumonia, and that the relief given

to the short, rapid, and at times labored respiration by each bath was immediate and marked. On the tenth day seven baths were needed; on the eleventh, five; on the twelfth and thirteenth, four; fourteenth, fifteenth, and sixteenth, three; on the seventeenth, eighteenth, and nineteenth days, every six hours, and thence only night and morning, as the case progressed slowly but steadily to defervescence on the thirty-first day; after which it became subnormal, often falling to 96° F. and once to 95.2° F. in axilla to the forty-third day, when convalescence was fully established.

CASE II.—C. D., a gentleman, aged forty-five years, with a gouty history and a sluggish liver, but of temperate habits, returned on the 27th of May, 1890, from a three weeks' fishing tour in Scotland feeling somewhat seedy, which he attributed to having one very hot day drunk a lot of water from a stream which he afterwards had reason to suspect was polluted with drainage.

On May 29 and 30 I saw him at his office, when he complained of loss of appetite, languor, headache, and general malaise. On June 2 I was sent for at 6 A.M., and found his temperature 100° F., which rose in the evening to 101° F. On the 3d he complained of severe pain in the region of the spleen and some vomiting. On the 6th his temperature was 101.6° F. in the morning, and 102.2° F. at night in axilla. On the same day he was seen by Dr. Phillipson, who confirmed my diagnosis of probable "enteric." On the eighth day, at 8 P.M., temperature rose to 104.8° F. in recto, when the first bath was given at 90° F. for fifteen minutes, cooled down to 85° F. For the next few days the temperature was very obstinate and difficult to keep under control, calling for baths every three or four hours; and on the eleventh day it reached 105.4° F. at 3 A.M., and during the eleventh and twelfth days rose to 104° F., and over fifteen times on the thirteenth day the maximum was 104.4° F. at 4 A.M., whence it steadily yielded to the nineteenth day, falling to 98.4° F. in recto at 9 A.M. Thence we had a "spurious remission" to the twenty-third day, with a rise on that date to 101.2° F. at 8 P.M., and on the twenty-fifth day to 102° F. at 5 P.M., when the baths were resumed, and we had to battle with a recrudescence even more obstinate and prolonged than the initial attack, the patient being at his worst on the thirty-first day (July 1). Twenty-three records of 104° F. and upward were noted from the twenty-eighth to the thirty-first days, and baths were needed every three hours day and night; but the patient never once was delirious, on the contrary frequently asking for bath when temperature rose.

On the morning of the twenty-seventh day he was suddenly seized with most excruciating pain in right testicle, and as it was not relieved by hot spongio-piline and two 30-minim doses of liquor morphinæ, he was put into a bath at 98° F. for an hour, which relieved him greatly. At 8 P.M. the attack recurred, when the bath for an hour was repeated, after which it passed away.

On the thirty-seventh day the highest record was 101.2° F. at 12 P.M., and the lowest 98.6° F. at twelve noon; thence to the fifty-first day the daily record ranged between 98.6° and 99.6° F., becoming normal on the fifty-second day, from which he was able to be up daily for a couple of hours on a sofa till the fifty-seventh day, when the temperature rose to 100° F. at 8 P.M. and ranged from 99° to 101° F. till the sixty-third day, with pain and some tympanites over region of cœcum, threatening typhlitis, relieved by absolute rest, hot fomentations, and a bath at 95° F. night and morning. On the seventy-first day he was up on sofa again; after seventy-sixth day, when we got 99° F. in the evening, temperature never rose above 98.4° F., and ten days later he was removed to Cullercoats in his brougham.

NOTE.—This was one of the most prolonged and obstinate cases of enteric that I have ever seen recover, and the pyrexia was most persistent in its recurrence, notwithstanding frequent bathing at a low temperature, the baths being cooled down to 48° F. with lumps of ice frequently; and I am satisfied that, having regard to the patient's age, habit, and history he would, in all probability have succumbed under the expectant treatment; and this view was fully shared by Professor Phillipson, who saw the case frequently in consultation with me.

It is a valuable testimony in favor of the baths to note that throughout we never had delirium, nor dry tongue; that there was comparatively little wasting; that the patient slept soundly between the baths, and that the diarrhœa, though at times troublesome, was never so persistent as to cause any anxiety. The first sound of the heart, though frequently feeble, was never absent.

The rash appeared on the eleventh day coincidently with the highest recorded temperature,—viz., 105.4° F. at 3 A.M. and 1 P.M. respectively.

Twice during fifteen minutes' immersion the

temperature of bath-water was raised respectively from 60° to 64° F. at 8 A.M. on eleventh day, and from 50° to 55° F. at 10.20 A.M. on thirty-first day.

CASE III.—E. F., a son of last patient, aged ten, was seen by me at Cullercoats (where he had been sent with his brothers home from school on August 1), at 1 P.M. on August 13, when his temperature was 101° F., with a history of being generally languid, tired, and off his appetite for a few days previously, though up and out daily. He was brought home the same day, and at 8 P.M. his temperature in axilla was 103.6° F. On the 14th, temperature rose at 8 A.M. to 103° F., and 9 P.M. to 105° F. in recto, when a bath at 90° F. was given for fifteen minutes, and renewed regularly and punctually every time the rectal temperature rose to 102.2° F. During the next seven days thirty-three baths were given. Thence to September 13, when the temperature ceased to rise beyond normal and continued so, a bath was given night and morning until the 19th of September, when he was carried down-stairs, and next day was driven in a brougham to Cullercoats.

NOTE.—This was a simple uncomplicated case, and absolutely under my own control and the care of a splendid nurse, and the bath rules were strictly adhered to free from any interference of timid or hesitating relatives, and the progress was steady and uninterrupted from start to finish.

No rash was observed. There was some abdominal tenderness and moderate tympanitic distention during the second and third week. Diarrhœa was moderate and required no special interference. He was not at any time delirious. He enjoyed his baths, took his nourishment well and wanted more, and was always happy and cheerful, asking the nurse frequently to read to him; in fact, never looked like a typhoid patient, as the nurse observed.

CASE IV.—G. H., eldest brother of the last, aged seventeen years, was home for holidays from a public school at Christmas, 1892. On the 5th of January he was "tobogganning" all day. During the next three days he was confined to the house mostly, and generally "out of sorts," with alternate chills and heats, headache, etc. (attributed to getting a chill when very hot on the 5th). On the 9th at 2 P.M. had a severe rigor and went to bed. When seen at 4 P.M. temperature in axilla was 103° F. and there was some little cough, bronchial râles, and expectoration. Ordered hot bath, warm diluents freely, and a diaphoretic mixture with ipecac, pneumonia being rather indicated.

On the 10th he had a severe attack of epistaxis from 8 to 8.30 A.M., and temperature at 10 A.M. was 100° F., and at 10 P.M. 103° F. in axilla. On the 12th (seventh day) there were four records of 103° F. and upward in the axilla (he objected to temperature being taken in recto), and the diagnosis of enteric became obvious, especially as he had been a little delirious in the night and had had two very loose slimy stools. On the eighth day temperature rose to 104° F. at 4 P.M. The baths, hitherto deprecated, were commenced, the first being given at 95° F. for fifteen minutes, that temperature at once allaying the patient's previous nervous dread of "the cold bath." Up to the sixteenth day the pyrexia was obstinate, rising on several occasions to 104° F. in axilla (or 105.5° F. in recto); thence it steadily declined to the twenty-second day,—98.4° F. at midnight and 99.8° F. at 8 P.M. On twenty-third day a soap-and-water enema was given, and repeated every third or fourth day as needed. After thirty-first day temperature was normal or subnormal. Two days later he was lifted on to a sofa, and a fortnight later was permitted to walk down-stairs.

NOTE.—This patient never was delirious after the first bath, slept well, took nourishment well, and suffered little or no inconvenience throughout except that associated with the necessary confinement to bed. No rash was detected, but several times during the first fortnight a distinct efflorescence, somewhat resembling a mild scarlet-fever rash, was observed on abdomen both by self and nurse.

NOTE.—In each of my cases the food was peptonized in the following manner: "Bring to the boil one pint of milk or beef- or other tea; stir in thirty grains of bicarbonate of soda, and then one tablespoonful (half a fluidounce) of Benger's liquor pancreaticus."

I must not conclude this paper without a brief reference to a modification, or, rather, extension, of the bath treatment, initiated and successfully practised by Dr. James Barr, of Liverpool, and fully discussed in his book published last year. He keeps the patient in a continuous bath and regulates the temperature of the water so that as long as the patient's temperature in the mouth is over 100° F., that of the bath is kept at 90° to 93° F., while, as the patient's temperature falls towards normal, that of the bath is made to rise coincidentally. Dr. Barr's results show two deaths in seventy-one cases, or a mortality of 2.7 per cent.

The plan appears to possess all the advantages and to be open to fewer objections than the intermittent bath, and it is also more applicable to middle-class patients, because of the less amount of labor and expense incidental to its practice.

Finally, I submit that the case for the bath treatment is simply unanswerable, and that no man can logically deny or cavil at it who has not seen a case so treated, nor, on the other hand, can he fully appreciate its obvious and numerous advantages until he has had an opportunity for such observation.

GATESHEAD-ON-TYNE, August, 1893.

ON THE USE OF PILOCARPINE IN AURAL AFFECTIONS.

A PAPER READ BEFORE THE SECTION OF OTOLOGY OF THE BRITISH MEDICAL ASSOCIATION, AUGUST, 1893.

BY G. METCALFE, M.B., B.S., ETC.,
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PILOCARPINE is used in ear-disease hypodermically and locally, by introducing it through the Eustachian tube into the middle ear. In employing the hypodermic method ⅓ grain is given daily as long as improvement continues, but is given up at the end of a fortnight if there is no improvement. It is safer to begin with a smaller dose, $\frac{1}{10}$ grain, and increase it rapidly to ⅓ grain. On receiving the injection the patient either retires to bed until perspiration ceases, or lies wrapped up on a couch in a warm room for one or two hours. Sometimes a dose of sal volatile or other stimulant is previously administered to counteract cardiac depression, but is not usually necessary.

In making local applications the Eustachian catheter is passed in the ordinary way, after which, my own method is to inject into the catheter, with a hypodermic or other suitable syringe, about six drops of a 1 to 40 solution of the drug, and then to force it onward by the air-douche until the otoscope demonstrates that a portion of the solution has reached the middle ear; these applications are made twice or thrice a week to each affected ear. These subcutaneous injections act by stimulating the intracranial absorbents, and so enabling absorption of morbid products to proceed, by increasing the amount of sweat, cerumen, and nasal and bronchial secretions, and probably those of the middle ear and Eustachian tube, through stimulation of their secretory glands and central nerve-centres. Possibly the labyrinthine fluid may be similarly affected. The effect of the drug commences, and is most marked, in the head, and extends thence downward throughout the whole body. The local applications stimulate the parts to which they are applied.

This method of treatment was first employed by Professor Politzer in cases of labyrinthine inflammation due chiefly to syphilis, and communicated by him at the Milan Congress in 1880. In 1885, Dr. Barr, of Glasgow, reported two cases of extreme deafness, both occurring suddenly; one due to hemorrhage into the labyrinth, cured by eight subcutaneous injections of ⅓ grain, the other due to syphilis of the labyrinth, cured after three weeks of hypodermic medication. Field, of London, and Bronner, of Bradford, also in 1889 reported a series of cases of mixed labyrinthine and middle-ear affections, successfully treated by daily hypodermic injections of pilocarpine, persevered with in many cases for six weeks, together with local applications through the Eustachian catheter.

In my own experience I have never been able to obtain such encouraging results in chronic middle ear catarrh, with coexisting internal ear deafness, by the hypodermic method; though many of my patients received the injections daily for six weeks, some improved in hearing power during the first week, but afterwards relapsed in spite of the continuation of the treatment.

In 1891, Professor Politzer published his paper on the employment of pilocarpine in certain affections of the ear and the abuses of this remedy. In this he gave precise indications and contraindications for its use; these have not as yet been improved upon, and are briefly as follows:

Useful in recent affections of the labyrinth, whether syphilitic or not. In cases of extreme deafness, when the tuning-fork is heard longer opposite the meatus than it is on the mastoid (positive experiment of Rinne), and low tones are heard better than high ones, together with other labrynthine symptoms, such as giddiness and inability to hear a watch through the head bones. Rarely in otitis media acuta, where the cavum tympani contains hardened exudative products which resist absorption. In panotitis due to syphilis or other infectious diseases.

When the labyrinth becomes implicated in cases of acute suppuration of the middle ear, in which perforation of the tympanic membrane has occurred.

Professor Politzer uses injections of six to eight drops of a two-per-cent. solution, through

the catheter into the Eustachian tube and middle ear.

Injections through the catheter into the tympanum are beneficial in catarrh, with swelling and scanty secretion from the mucous membrane of the middle ear. They are continued for from one to three weeks alternately with Politzerization. Pilocarpine is contraindicated in cases of extreme deafness when the tuning-fork is heard longer on the mastoid than opposite the ear (negative experiment of Rinne), and high tones are heard distinctly, whilst low tones are heard faintly or not at all; also, in chronic progressive sclerosis and chronic catarrh of the middle ear.

It has therefore been proved that pilocarpine does not cure cases of inflammatory syphilitic and hemorrhagic deposits in the internal ear which would not be amenable to any other treatment, though I believe these cases to be exceptions. The following cases are some examples of failures:

CASE I. *Syphilitic Disease of Labyrinth.*—T. W., aged thirty-nine. Extreme deafness came on suddenly three weeks ago, with tinnitus, followed by deafness in three hours. Had syphilis two years before, pains in legs one year, and now has serpiginous ulcers on one calf. Has vertigo on turning over in recumbent position.

Treatment.—Pilocarpine, ⅓ grain hypodermically, daily for a fortnight, then after a short interval, again for another week. Iodide of potassium and mercury internally, and iodoform ointment for the ulcers. The ulcers healed, but the deafness was not improved.

CASE II. *Hemorrhage into Labyrinth of Both Sides.*—Wm. B., aged fifty, fell down some steps ten days ago, on left side of head; was totally deaf on both sides for three days; is now very deaf in right ear (side opposite to blow) and slightly deaf in left ear (same side as blow); has a hæmatoma, three inches by two inches, on left temple.

Treatment, October 23, 1892.—Iodide of potassium internally for one week; hearing improved during first three days only; at the end of a week pilocarpine was injected subcutaneously daily for ten days; no improvement either in hearing or in hæmatoma. In December blisters were repeatedly applied, both to mastoid and to temples, when the hearing improved in both ears and the hæmatoma disappeared.

CASE III. *Œdema* (?) *of Internal Ear.*—Mary Jane R., aged forty-eight. A case of deafness occurring in the course of Bright's disease, with slight general anasarca.

Treatment begun October 20, 1891.—Pilocarpine, subcutaneously, for one week; general improvement, but no improvement to hearing.

CASE IV. *Menière's Disease.*—James S., aged sixty. Suffers from deafness and tinnitus, with occasional attacks of vertigo, when he feels as if he were turning rapidly round and round, and has to catch hold of some support to prevent himself from falling.

Treatment.—Pilocarpine injection from September 18 to November 20, 1890. No improvement.

CASE V. *Labyrinthine Complication of Acute Suppurative Otitis Media.*—John B., aged thirty-seven. Has suffered from acute otorrhœa, with perforation, for fourteen days, with deafness, tinnitus, giddiness, and staggering gait, and + Rinne.

Treatment from June 27, 1892.—Boracic lotion for syringing, and pilocarpine hypodermically and per Eustachian catheter. The tympanic suppuration was cured permanently, the hearing power improved, and giddiness and staggering disappeared, but the labyrinthine symptoms relapsed again at the end of a fortnight.

In old-standing syphilitic cases, in cases resulting from fracture of the skull, or from meningitis, I have never observed the slightest benefit from pilocarpine medication. Progressive sclerosis of the middle ear is not amenable to this remedy.

In chronic middle ear catarrh I have had many cases which improved slightly, for a week or so, under subcutaneous injections alone, but afterwards relapsed, and continuation of the treatment was of no benefit. The majority of these cases were not in the least improved by pilocarpine hypodermically.

The other method of using pilocarpine, recommended by Politzer,—namely, by injections through the catheter into the Eustachian tube and middle ear,—has yielded me some favorable results in chronic middle ear catarrh, either with or without labyrinthine symptoms, after routine treatment had failed. I inject into the catheter about 6 drops of a 1 to 40 solution of pilocarpine, and then force it onward with the air-bag; sometimes a little escapes into the pharynx, some of it is lost in the Eustachian tube, and a little is heard to enter the tympanum. A diminution of tinnitus and a slight improvement in hearing power very frequently result.

When from Eustachian obstruction air enters the middle ear with difficulty, after the solution is injected air frequently passes easily

and freely. This effect is immediate, and is probably due to the mechanical force of the fluid overcoming the obstruction. The specific effect appears to me to be due to the stimulation of the normal secretion of the Eustachian tube and tympanum, bringing them into a healthier condition, and leading to increased mobility of the conducting apparatus.

I am inclined to think that the good results obtained in mixed middle ear and labyrinthine cases by some observers who have used hypodermic injections and injections through the Eustachian tube, concurrently, have been brought about by the local applications to the Eustachian tube and middle ear, and not to the subcutaneous medication. The following case bears out this opinion.

CASE VI. *Chronic Tympanic Catarrh.*—Mrs. R——, age about thirty-five, very deaf, can hear loud conversation; and aggravated tinnitus, which is growing worse; has been under prolonged treatment by specialists during last ten years without benefit.

Treatment from March 3, 1893.—Application of pilocarpine to middle ear, through the Eustachian tube, for one month. Tinnitus diminished so as not to cause much distress, and hearing improved so that moderately loud conversation could be heard. At the end of a month pilocarpine was given subcutaneously, as well as by the catheter, for a fortnight; when the tinnitus and deafness relapsed to their previous proportions, treatment was discontinued for a fortnight, and then applications by the catheter only were resumed, and the tinnitus and deafness again improved.

I think that local pilocarpine medication to the tympanum and Eustachian tube is often a useful method of treating chronic tympanic catarrh when routine treatment has failed. Very often when the hearing power is not increased for the watch, patients are positive as to their subjective improvement.

Pilocarpine drops, eight grains to the ounce, with glycerin and water, applied to the external auditory meatus, in dry conditions of the meatus and membrana, often afford some relief, but I have never noticed any good effect when it was given by the mouth.

There is a great difference between the action of different samples of pilocarpine, and this is a matter of considerable importance in practical aural therapeutics. I have often found $\frac{1}{10}$ grain produce free perspiration, when in the same series of patients $\frac{1}{3}$ grain obtained from another source has produced no effect.

TOLERANCE TO NITRO-GLYCERIN EASILY ACQUIRED. LIMITATIONS OF USE OF THE DRUG IN CHRONIC NEPHRITIS.

BY D. D. STEWART, M.D.,
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IN a recent issue of the GAZETTE a case of polyuria is reported in which, nitro-glycerin having been prescribed, the patient, in less than a year from first beginning this drug, through acquired tolerance to its effects, was taking about 18 grains daily. As several cases of rather promptly acquired tolerance to nitro-glycerin have been reported in the past year, the recorders of which are evidently unaware of an earlier case in medical literature, I feel constrained to say a word on the subject.

In the *Polyclinic* of August and of December, 1888, I related a case of chronic nephritis, under treatment in the medical clinic of the Jefferson Hospital, in which, in less than six months after an initial dose of 1 drop of a one-per-cent. solution of nitro-glycerin, such tolerance has been established that a dose of 50 minims of a ten-per-cent. solution (five minims pure nitro-glycerin) was taken *four* times daily, with less effect on vascular tension than the initial dose of $\frac{1}{100}$ grain.

In my experience, too readily acquired tolerance to nitro-glycerin is not rare, the difficulty being to so carefully and intelligently regulate its administration that, while maintaining a constant slight effect on blood-pressure, the increase in dose is as gradual as possible. In my case, in which 20 minims of pure nitro-glycerin were taken daily, the patient had not been encouraged to increase the dose beyond an amount sufficient to produce more than a *slight* physiological effect,—a feeling of trifling fulness in the head. Yet, despite admonitions as to care in gradual increase, the patient, knowing the nature of his ailment, and believing that great curative power must reside in a drug the name of which suggests so much, and the effects of which on the vascular system were so promptly and powerfully exerted, apparently advanced the dose more rapidly than necessity demanded. Noting this, the drug was several times, at a few weeks' intervals, temporarily discontinued, a much smaller amount being directed to be taken on resuming it than that last used; the increase was also to be very gradual. Notwithstanding this, and careful directions as to the best mode of taking nitro-glycerin, doses of 50 minims of a ten-per-cent. solution four times daily were soon reached and continuously taken without

the occurrence of any headache whatever, but slight transient flushing of the face, and no very marked effect on arterial tension, as shown by the sphygmograph.*

Prescribing nitro-glycerin frequently, I often encounter cases in which I believe similar inconvenient doses could be as promptly reached, with as little systemic effect as in the case just narrated, were a too rapid increase to be permitted. Where it is desired to employ this drug over a considerable period for its effects on blood-pressure, the best rule of administration, in my opinion, is to so proportion the dose that the intervals are comparatively short,—never less than four times daily,—and the amount, though sufficient to produce some subjective or objective effect, never more than that just necessary to cause the *slightest* feeling of fulness in the head or to slightly quicken the pulse; these last are certain indications that other physiological effects desired occur. Unless unusual susceptibility exists, if enough is always taken to produce a more marked immediate result, such as flushing and slight headache, tolerance is soon acquired, and a quantity may be early reached altogether impracticable of administration. Where a rather rapid increase seems necessary to maintain a constant effect, an equally important point is to temporarily discontinue the drug for two or more days, at intervals of two or three weeks. On its resumption a much smaller initial dose will be required to produce physiological effects than that last taken. So used, inconvenient tolerance will be less likely to occur, and the employment of strong solutions, the handling of which is not altogether free from danger, will be less necessary. It must be remembered that nitro-glycerin has, so far as we know, absolutely no action in cases of chronic nephritis apart from its effect upon vascular tension. It is only indicated in those cases in which the blood-pressure is persistently markedly high, and in which consequences, such as cerebral hemorrhage or valvular disease of the heart, or stretching of its cavities, are to be feared. Cerebral hemorrhage is a late complication. It requires for its production not only vigorous heart-action, but also weakened (generally aneurismal) cerebral vessels. Valvular disease of the slow sclerotic form, commonly mitral, is not infrequently encountered in cases of granular kidney of long duration in which cardiac hypertrophy has kept pace with prolonged arterio-capillary resistance. As Mahomed long ago showed, the pathological conditions underlying the cardiac condition in these cases is oftener recognized than that in which a leaking mitral has resulted from an overstretched ventricle. These various more or less remote sequences of persistent raised arterial tension—save perhaps the last, to prevent which both nitro-glycerin and a heart-tonic may be required—are late phenomena, and usually less to be dreaded than certain more immediate results from undue lowering of vascular tone.

It must not be forgotten that a moderate amount of tension is probably actually conservative. It seems to be recognized that those cases of chronic Bright's disease in which tension is persistently low from the outset are actually of much more gravity than the commonly-observed variety with raised vascular tone, and when arterio-capillary resistance shows a tendency to fail voluntarily, scanty urine, with more marked albuminuria, and dropsy may be expected.

In the administration of nitro-glycerin these points must be borne in mind, and the drug not merely prescribed because the case is one of chronic nephritis. Much more was originally expected of nitro-glycerin as a remedial agent in conditions of persistent high tension than has been realized. I now employ it less frequently in such cases than formerly, endeavoring, at first at least, to bring about the same effect by limiting the nitrogenous intake and maintaining a free action of skin and bowels. The influence of constipation in heightening blood-pressure is well known, but this fact is not always applied in therapeutics, and the modifying effects of diet are even less attended to. Nitro-glycerin and the nitrites temporarily lower pulse-tension without influencing the ever-present cause. The latter, if not arterio-capillary fibrosis,—then little controlled by any measure,—is nitrogenous waste in the blood. Free action of the emunctories tends to overcome this, but the fountain-head must be sought for permanent relief. The remarkable effect that may be produced by diet on arterial tension in granular kidney is beautifully shown in the accompanying sphygmograms.

The case,—a male, aged thirty-one,—when originally seen some months before obtaining the first tracing, presented signs of persistent high tension without indications of vascular fibroid change. No tracing was then taken, though pulse-tension was carefully noted. Sphygmógram I. shows a quite normal pulse.

* See *Polyclinic*, 1888, p. 172. A dose of 5 minims of pure nitro-glycerin (in alcoholic solution) was administered by myself before Professor Da Costa and the class in the clinic, so that there could be no mistake as to amount.

The tension is not raised. The tracing is not at all indicative of a kidney lesion. The upstroke is vertical, the tidal wave slight and below a line drawn from the apex of the upstroke to the aortic notch. The pressure was one and a quarter to one and a half ounces, a greater amount extinguishing the pulse. A number of tracings taken with slightly-varied pressure gave a similar result. The pulse was 74 to 76; tracing and pulse taken sitting. The patient had been on a non-nitrogenous dietary for two months; no meat, fish, or eggs had been eaten.

Sphygmogram II. is a quite typical high-tension (kidney) pulse. It is one of a number of tracings taken a week after the first, all showing an identical condition. The upstroke is a trifle less vertical than in Sphygmogram I.; the tidal wave is well pronounced, a portion of it occupying a position above a line drawn from the apex of the line of ascent to the aortic notch, which latter is placed high. The pressure employed was one and three-quarters to two ounces, no pressure less than one and three-quarters ounces developing the pulse. The latter was *60;* pulse and tracings taken sitting. Conditions other than diet were the same at the time of developing each sphygmogram. During the seven days the patient had eaten meat once to twice daily in addition to ordinary diet.

Sphygmogram III. is from a younger brother of the above. This case is also one of chronic nephritis. The tracing shows markedly the effect of a non-nitrogenous diet. This patient has eaten no meat, fish, or eggs for over two months. On a nitrogenous diet he has a typical high-tension pulse.

SPHYGMOGRAM I.

J. B. June 2, 1893. Pressure, 1¼ ounces. Non-nitrogenous diet two months.

SPHYGMOGRAM II.

J. B. June 9, 1893. Pressure, 1¾ ounces. Only pressure giving satisfactory tracing. Meat diet one week; meat once daily.

SPHYGMOGRAM III.

W. B. June 10, 1893. Pressure, 1¾ ounces. Vegetable diet two months.

In both cases urea and uric acid excretion are much diminished. There are well-marked symptoms of chronic Bright's disease. Casts are present in the urine, but albumin is absent.

These sphygmograms graphically and beautifully illustrate what may be accomplished in lowering vascular tone by diet without a resort to nitro-glycerin.

2620 NORTH FIFTH STREET, PHILADELPHIA.

THE NATURE OF VACCINE IMMUNITY.

FROM THE PATHOLOGICAL LABORATORY, UNIVERSITY COLLEGE.

By S. P. KRAMER, M.D., AND RUBERT BOYCE, M.B., M.R.C.S.,

Assistant Professor of Pathology, University College, London.

IT seemed to us to be desirable to apply our knowledge of experimental immunity, as it exists to-day in the case of certain infectious diseases whose specific causes are known, in investigating the nature of the immunity produced by inoculation of cow-pox.

We know that when immunity to infectious disease has been experimentally induced in

animals, the serum of their blood possesses immunizing and even curative powers against the diseases in question, when injected into other animals.

The literature of the subject, as far as it concerns vaccinia, is as follows: Chauveau injected into the jugular veins of two young horses five hundred grammes and one thousand grammes, respectively, of the blood obtained from a horse in full vaccine eruption. Typical papules were subsequently produced in both cases by inoculation. Raynaud obtained similarly for the most part negative results. Straus, Chambon, and Menard transfused a large quantity of blood (five thousand five hundred grammes) obtained from a calf seven weeks after vaccination. A vaccine eruption developed after vaccination.

In our first series of experiments we have injected non-vaccinated calves with sterile blood-serum obtained from vaccinated calves. The animals so treated were vaccinated with active vaccine lymph. Absolutely no local reaction was observed at the point of injection. The total amount injected varied from 3.04 to 18.94 cubic centimetres per kilo of animal.

EXPERIMENTS.

CALF I.—Weight, 136.4 kilos; serum injected, four hundred and fifteen cubic centimetres; amount per kilo, 3.04 cubic centimetres; result, no immunity.

CALF II.—Weight, one hundred and fifty kilos; serum injected, twelve hundred and forty cubic centimetres; amount per kilo, 8.27 cubic centimetres; result, immunity.

CALF III.—Weight, one hundred and thirty-five kilos; serum injected, twelve hundred and fifty cubic centimetres; amount per kilo, ten cubic centimetres; result, no immunity.

CALF IV.—Weight, one hundred and twenty-one kilos; serum injected, thirteen hundred and eighty cubic centimetres; amount per kilo, 11.8 cubic centimetres; result, no immunity.

CALF V.—Weight, one hundred and thirty-two kilos; serum injected, two thousand five hundred cubic centimetres; amount per kilo, 18.94 cubic centimetres; result, no immunity.

From these experiments it may be seen that in four animals the injection of large quantities of the serum obtained from calves ten to fourteen days after vaccination had no immunizing effect. The different result obtained in Calf II. we cannot explain. We have commenced a second series of experiments in which the serum is used which has been taken from calves in full eruption. The result in our first experiment has in this case also proved negative in spite of the injection of fourteen hundred and eighty-five cubic centimetres.

THE TREATMENT OF CERTAIN FORMS OF FRACTURE.

PHELPS (*New York Medical Journal*, vol. lviii., 1893), in a general discussion upon the treatment of fracture, strenuously insists that there is always possibility of imperfect union, and holds that usually the danger can be averted by sufficiently early recognition and adequately careful treatment. If firm, accurate, undeviating, and persistent coaptation be made, osseous union will seldom fail in uncomplicated simple fractures. If in fractures of the shaft of the humerus the elbows were always properly supported; if in fractures of the shaft of the femur the fragments were always properly reduced; if all fractures, after the application of proper retentive apparatus, were left without unnecessary disturbance, the opportunities for study in the field of ununited fractures would be seriously curtailed.

In operation for ununited fractures the choice lies between drilling, wiring, and resection of the ends of the fragments, and of these the former is the one to be preferred in suitable cases. In case of failure, drilling will not prejudice the resort to other measures. The femur is of all bones least suited to its employment. In case by any chance purulent inflammation follows, it is liable to be diffused along the muscular planes, and to involve loss of limb, or even life itself. With one such accident the author is familiar, though the patient ultimately recovered.

THE TREATMENT OF VULVAR VEGETATIONS BY PURE CARBOLIC ACID.

DERVILLE, of Lille (*Journal de Médecine et de Chirurgie Pratiques*, tome lxiv., 64 année, 4 series), treated a case of vulvar vegetations covering both the anus and the vulva, and reaching the size of a man's fist. He cured this enormous growth by local washing with pure carbolic acid. The whole surface of the vegetations was painted with the pure acid; this application was repeated about every fourth or eighth day. The treatment occasioned no pain, but frequently caused erythema, vesiculation, and excoriation of the surrounding parts. This is prevented by the application of vaseline to the healthy skin.

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Leading Articles.

ANTISEPSIS IN OPHTHALMIC SURGERY.

THE literature of the subject of antisepsis in its relation to ophthalmic work is an extensive one, and is constantly receiving additions as surgeons here and there contribute their experiences, sometimes the result of careful bacteriological research or clinical observations, and sometimes, unfortunately, the result of precipitate adulation of a new or favored germicidal substance.

Recently, Nuel (*Revue Générale d' Ophthalmologie*, May 31, 1893) and other of the French surgeons have contributed another quota to this subject, an abstract of which appears in our Progress columns. Nuel's directions for preparing the patient are excellent, and embody the ordinary rules which an abundant experience has proven to be well formulated. It is interesting to note that, although he distinctly deprecates the use of an antiseptic within the conjunctival sac which, either from its inherent nature or because of undue concentration, might irritate the conjunctiva, he advises and employs an aqueous solution of sublimate (1 to 2000), the strength of which he occasionally, but evidently not with a perfectly clear conscience, reduces to 1 to 3000, or even 1 to 5000. Nuel's experience of what constitutes an irritating strength of sublimate when applied to the conjunctiva must differ widely from that of many surgeons on this side of the water. His belief in the certain antiseptic properties of this drug, under these circumstances, is not shared by many experienced observers and experimenters, and it is not "universally conceded" to be the best of antiseptics. It is instructive to contrast his recommendation that the sublimate irrigations of the conjunctival sac shall be repeated three or four times daily during two or three days before the operation, with the advice of America's most distinguished cataract operator: "Anything that produces a congestion, be it exposure to dust, lack of sleep, irritants such as corrosive sublimate or nitrate of silver in a strength to cause hyperæmia, lymphatic exudation and exfoliation of epithelium,—*i.e.*, food for bacteria,—should be strictly kept from the eye for days previous to the operation." We are impressed with the belief that bichloride of mercury (1 to 2000) constitutes a strength to cause the very conditions which Dr. Knapp so earnestly seeks to prevent, and we cannot regard Nuel's advice in this particular worthy of acceptance, although we fully sympathize with his doctrine that the ideal substance for disinfection of the conjunctival sac is one which, while actively antiseptic, is without deleterious effect on the tissues.

With other recommendations in this communication we are fully in accord, and particularly with the injunction to prevent the contact of the sublimate lotion with the eye or conjunctiva after the operation (extraction) is begun. All necessary irrigation is done with a physiological salt solution, sterilized by boiling,—a solution which he thinks, and with good reason, is preferable to boracic-acid lotion.

He rejects sponges and also absorbent cotton as aids in removing blood from the area of operation, thinking that aseptic gauze answers every purpose, and there can be no doubt that bits of gauze prepared by sterilization with steam are neater, cleaner, safer, and in every way more desirable than cotton; no one is inclined to employ sponges, which have long since been relegated to the background.

We cannot review all of the points in antiseptic technique which are carefully considered by Nuel, and which are more fully detailed in the Progress columns. One point, however, to which he makes reference deserves special mention,—viz., what he describes as his criterion of predisposition on the part of the eye to infection. After all has been done to render an eye safe, especially if there has been hyperæmia of the conjunctiva, or lachrymal disease, the question arises, Have the methods been sufficiently thorough? Is the eye sufficiently aseptic? According to Nuel, an affirmative answer may be given if an aseptic bandage, which has been applied for two days, is found on removal unstained with secretion and the eye dry and pale. If, on the other hand, there is notable secretion, or the eye becomes congested and the conjunctiva leaky under this test, then operative measures must be postponed, preparatory treatment continued for some days longer, and the test reapplied until satisfactory results are obtained. This practice is one we have long adopted, in suitable cases, with abundant satisfaction, and can testify to its value. Haab, who closes with the galvano-cautery the canaliculi of an eye in which he suspects the lachrymal passages, and thus, he believes, shuts off a source of infection, uses this test to demonstrate the efficiency of his method. According to him, if both eyes are bandaged, the one having been prepared in this way and the other not, after twenty-four hours the dressing of the first eye will be found dry, while secretion, mucus, etc., will be present in the corner of the second eye and on the piece of lint or gauze which has covered it. Not many surgeons are willing to adopt Haab's heroic measure of excluding the tear-passages from connection with the conjunctival sac, but his recommendation to apply a bandage—again lauded by Nuel and employed by many operators—to test the predisposition of an eye to accumulate secretion, and consequently to enhance the danger of infection of a corneal wound, is worthy of general adoption.

SOME FACTS IN REGARD TO THE ADMINISTRATION OF IRON.

EVERY one who makes a careful study of therapeutics must realize that it is the condition of the individual case rather than the real disease from which he is suffering which indicates the use of this or that remedy. This law of therapeutics finds exemplification in the subject of the administration of iron, since the various preparations of iron act in different ways in different stages of disease. Perhaps the most common mistake which is made in the prescription of iron is its administration to that indefinite class of cases which the doctor is apt to classify as suffering from "debility," because he is unable for one reason or another to discover the true cause of their condition. In other words, it is the routine practice of many physicians to employ iron as a tonic wherever they find that there is derangement of function, which they believe to be due to lack of tone, or torpidity. While iron is, above all other remedies, the most valuable in certain conditions associated with the blood, whether these conditions consist in alterations of this fluid or in the presence in it of septic material, it is not a remedy which possesses in itself the power of adding tone to the organism or of stimulating it to increased exertion. It probably does not even have the transient stimulating effect which is possessed by many of the simple bitter tonics, and does more towards disordering the digestion of many of those who take it than is commonly believed. In the first place, we believe that it is in the anæmia which is due to a lack of hæmoglobin, rather than that which is due to a lack of corpuscular elements of the blood, that iron finds its chief usefulness; and, secondly, we are confident that a common mistake is its administration in too large doses. Iron is a remedy which is present in very small quantity in the human body; the normal amount is preserved in the ordinary individual by the trace which it takes in his body, and compared with this trace the ordinary doses of iron are simply enormous. Some years ago the writer of this editorial made a comparative study of the influence of iron in small and large doses on twelve cases of anæmia which, as far as possible, resembled each other in every way. Six of these people received 2 or 3 grains of reduced iron three times a day, and the remaining six received ½ grain three times daily. The six that received the small doses had far less disorder of digestion than those which received the large doses. Their recovery was as prompt as those receiving the large doses, if not more so, and the attending physician had the satisfaction of knowing that he was accomplishing a good result with a small quantity of medicine, instead of using large amounts of it. It is true that in some conditions in which there is gastro-intestinal disorder associated with the formation of gas arising from fermentation or decomposition, and in which the anæmia is largely due to destruction of the constituents of the blood by the absorp-

tion of poisonous materials from the intestine, large doses of iron are absolutely necessary. Necessary, because in these instances only a small quantity of iron is absorbed, and the greater amount of it forms a sulphide of iron, or other compound, with the contents of the intestine. Where we have, therefore, a destruction of the iron in large amount it may be necessary to give it in full dose; but, unless this is the case, we are firmly convinced that ⅛ grain of reduced iron will in most cases give better results than 3 grains. It will be found under these circumstances that constipation, which we all know is a frequent sequence of the administration of iron, more rarely occurs, and, as a result, that the general health of the patient is improved. We also avoid in this way the so-called iron headache, which in some cases is produced by constipation, and in others so rapidly develops if there exists a condition which we call, for lack of a better term, "the rheumatic or gouty diathesis." In other words, gouty and rheumatic persons suffering from anæmia, who suffer from severe headaches under the ordinary administration of iron, may obtain much benefit from this drug if small doses, which will be absorbed, are employed in preference to the large ones, which are not entirely absorbed. But even this hope sometimes proves delusive. We believe that, unless the physician desires to get the astringent influence of the sulphate of iron, he will get good results from small doses of the sulphate of iron in exactly the same way that he gets good results from small doses of reduced iron, and that it is only when the diarrhœa accompanies the anæmia that it is necessary to administer large doses of sulphate of iron for both its hæmic and astringent influence.

PARENCHYMATOUS INJECTIONS IN ACUTE INFLAMMATORY AFFECTIONS OF THE TONSILS.

OCCASIONAL reports as to the beneficial effects to be derived from deep injections of powerful antiseptic solutions in cases of infective inflammation of the tonsils have appeared certainly for the last ten years, but have attracted little attention, mainly because the physician or surgeon reporting such cases was so placed that his experience was necessarily limited, or was so little known that his conclusions, whether favorable or unfavorable, were not accepted by the profession at large. In the last few years, and particularly in relation to diphtheritic inflammations, these reports have been multiplying, and have been almost unanimously in favor of this method of treatment. Lately, Von Ziemssen, of Munich, strongly advocated these injections before the Twelfth German Medical Congress, held at Wiesbaden in April of this year. He called attention to the fact, long since known, that there is constantly found in the crypts and lacunæ of the healthy tonsil the micro-organisms of the common septic processes. As long as the epithelial lining of these follicles is intact these micro-organisms are innocuous; but when, from acute congestion incident to cold, or excited by the poison of scarlet fever, or occasioned by diphtheritic infection, this epithelial lining is broken through, or its normal resistance is greatly lessened, these micro-organisms penetrate into the substance of the tonsil and excite their characteristic virulent local and general effects. Von Ziemssen employs the carbolic solution recommended by Taubner and Heubner. In cases of catarrhal tonsillitis he injects about 8 drops of a two-per-cent. carbolic solution. The aching and the pain on swallowing disappear almost immediately, and the temperature quickly drops to normal. Usually one injection into each tonsil is sufficient to definitely stop the suppurative process; occasionally two are necessary. The effects of these injections were so constant, and the relief from the subjective symptoms so immediate, that this treatment must be regarded as truly abortive in its effect. The injections are readily made, occasion almost no pain, can be given by an ordinary hypodermic syringe, though they are more conveniently administered by means of a syringe provided with a long needle, and they never excite undue inflammatory reaction.

Von Ziemssen employed this method of treatment in all forms of tonsillitis presenting themselves to him, including those incident to scarlet fever and diphtheria. In all his general results were favorable.

Sahli, in commenting upon Von Ziemssen's statement, is entirely in accord with that author as to the favorable effects of the injection. While commending carbolic acid, he personally uses the iodine trichloride, preferring this antiseptic on account of its powerful germicidal effect and its relatively slight toxicity.

Behring's experiments showed that, after infecting an animal with diphtheria, cure took place when the iodine trichloride was injected near the infected area. These experiments had weight in inducing Sahli to choose this remedy. He injects once or twice daily a two-tenths-per-cent. watery solution of the drug, driving

it, a drop or two at a time, into various parts of the inflammatory swelling. In diphtheritic cases injections were made into and beneath the pseudo-membrane and into the underlying connective tissue. He states that, especially in diphtheria, the local and general amelioration of symptoms is frequently astonishing.

Heubner reiterates his opinion expressed seven years ago as to the good effects of this treatment. He states that he has employed the method for twelve years, and never had occasion to regret so doing. He has treated several hundred cases of scarlet fever in private practice, and in the last year and a half treated fifty-one cases in the hospital; twenty-two of these cases presented grave diphtheritic lesions of the throat; fifteen of these throat cases were cured. Usually about fourteen of the injections were necessary before final cure took place. In one case unusually severe thirty-five injections were necessary.

He states that these injections are more easily applied than either gargles or paintings of the throat, and that, beyond a slight burning, no pain is occasioned.

Von Ziemssen and his colleagues have probably given this method of treatment the strongest endorsement it has received, and as a result of their teaching it will no doubt be employed more frequently than ever before. That the results cannot always be successful need scarcely be said. Indeed, it is difficult to explain why any success whatever should follow these injections, since sections of tonsils show that in many cases, if not in the majority, there are multiple foci of suppuration, and that in severe cases infection is spread wide of the tonsil itself. Even when there is a single focus of infection which has advanced so far that distinct symptoms are excited, it is only by luck that a small amount of injection could be driven into it, and even when this takes place it is hard to understand how this injection can destroy all the germs in and about this focus. On the contrary, it seems reasonable to suppose that, as a result of inflammatory reaction, the extension of disease would be even more active than before the treatment. Still, proof is more positive than theory, and this method of treatment has been advocated by careful men, whose reputations for scientific accuracy are world-wide. Again, similar methods of treatment have been successful in the management of lymphatic glands in other parts of the body,—viz., the iodoform injections in the treatment of tubercular adenitis, and the benzoate of mercury injections for the cure of bubo. It is a method worthy of trial, but it must be borne in mind that prompt subsidence of beginning acute tonsillitis should not necessarily be attributed to the treatment, since spontaneous resolution is by no means uncommon.

Reports on Therapeutic Progress.

THE THERAPEUTIC VALUE OF CHLORIDE OF METHYL.

After noting the literature of this remedy, DR. HERTMANN (*Therapeutische Monatshefte*, April, 1893) relates his own experiments in its use, tabulating twenty-nine cases. In fifteen cases of sciatica, three improved, there were two failures, and ten cures. Three cases of intercostal neuralgia, two of pleurodynia, and one case each of lumbago and coccygodynia were cured. Four cases of rheumatism, partly of long standing, were cured.

The chloride of methyl is sprayed upon the diseased limbs. Having frequently used it during a year, Hertmann believes it will be a valuable aid in the treatment of neuralgia and other painful diseases.

JAMBUL FOR GLYCOSURIA.

DR. VIX (*Therapeutische Monatshefte*, April, 1893) found syzygium jambolanum too high-priced for practical purposes, especially as the small doses commended by English physicians were only of temporary value. He then tried a jambul preparation made from the rind instead of the fruit itself, which is much less expensive. He tried this in the treatment of twelve cases.

The first case was a man, fifty-six years of age, suffering with chronic eczema of considerable extent. His two brothers had died of diabetes. There was seven per cent. of sugar in the urine. He was ordered a strict antidiabetic diet and 10⅓ drachms of extract syzygium jambolanum from the fruit, daily. At the end of four days the urine was free from sugar, and he remained so for two years, the urine being examined every month. He died recently of influenza, pleuritic exudation, and heart-weakness. At the time the jambul treatment was begun, the eczema soon disappeared without any local treatment. His diet was only strictly antidiabetic at first. In all he took about seventy-two drachms of jambul extract of both kinds.

The second patient was a man of about the same age, who had suffered for three years from slight glycosuria, for which he had visited various springs. He had appeared to be free from

sugar for several months, when attacked with influenza in January, 1892. To this was added a capillary bronchitis, much spread over both lungs, with small patches of pneumonia and great difficulty in breathing. The existing weakness made a fatal termination imminent for a long time. On the 2d of February a new complication was noted; the urine contained a small quantity of albumin and nearly three per cent. of sugar. The amount passed in twenty-four hours was thirty drachms. He was given 12 drachms of fluid extract syzygium from the rind. On the next day the amount of sugar was reduced to one-half per cent. When the dose was diminished the sugar increased; but after ten days on the above dose both albumin and sugar had gone. The whole condition then rapidly improved, the patient recovering his usual strength, and remaining free from sugar during the following months by observing a strict diet. Vix considers the jambul a direct life-saver in the above case, for had the secretion of sugar continued, it would soon have exhausted the patient's strength.

Vix used the hull extract in ten other cases, some of them severe chronic ones. He found that if the patients obeyed the dietetic directions, it was possible to free the urine from sugar in a few days as well as to greatly improve the general condition. It should be remembered that the secretion of sugar is not a separate disease, but simply a symptom of diseases, so that the jambul is not able to produce a radical cure without the use of other remedies. But it is a valuable aid, rendering patients able to work for many years.

Vix did not find any disturbing action, even when it was used in large doses for a long time. He gives it upon a full stomach. A few times he noted severe diuresis of short duration after 10½ drachms had been given.

THE TREATMENT AND CURE OF LEPRA TUBEROSA WITH EUROPHEN.

Dr. Julius Goldschmidt (*Therapeutische Monatshefte*, April, 1893), after speaking of the characteristics of leprosy, its local and very slow development, and the apparent lapse of months and years without any perceptible change in the spots, tells of his efforts to effect a cure by local treatment.

He used europhen in several cases with varying results, and finally achieved with it the first cure which has rewarded the careful efforts he has made for twenty-five years past. The disease manifested itself in the form of tubercular formations at the left of the mouth, on the left upper lip, chin, right eyelid, on the tip of the nose, and on the right upper and the left under side of the thigh. His treatment was to rub all of the leprous spots and their surroundings with a five-per-cent. oil of europhen. Three times a day all the thickened and all the suspicious spots were gently rubbed for five minutes, and the oil left upon them, so that they were in contact with it day and night. The woman continued this treatment faithfully for ten months, it being only interrupted at the birth of a healthy child. Goldschmidt was himself surprised at the result. The improvement was noticeable at the end of four weeks. At the end of fifteen months the eyelids are entirely normal, so that the original position of the disease is no longer to be seen. The large leprous spot on the upper lip and at the corner of the mouth, as well as the smaller one on the chin, are entirely healed; the skin is of a pale-brown color and slightly depressed as compared with the surrounding surface. Bacilli are no longer to be found. The tip of the nose is still somewhat red and swollen, but from here, too, the bacilli have vanished. The spots on the lower extremities are fully healed. The woman's general health is excellent, and has never been disturbed during the long course of the treatment.

THE TREATMENT OF CONSTIPATION AND SOME AFFECTIONS OF THE BOWELS WITH LARGE ENEMAS OF OIL.

Professor Fleischer (*Medicinisch-Chirurgisches Centralblatt*, March 10, 1893) thinks that atonic and spastic constipation are too often treated without discrimination. He regards oil as the best article to use in the treatment of spastic constipation. His method is the one devised by Kussmaul. As the object is to introduce the oil as high as possible in the colon, for a grown person from 13½ to 17 fluid-ounces of oil should be given as an enema, the patient lying upon his back, with a stiff cushion from eight to ten inches high under the pelvis. To prevent thermic and mechanical irritation of the mucous membrane of the large bowel, which would cause peristalsis, the oil used should be warmed to the temperature of the body and flow in slowly at slight pressure.

The oil is usually from fifteen to twenty minutes in entering the bowel.

Professor Fleischer does not expect a single enema of oil to suffice, but has it repeated on several succeeding days. Sometimes the oil acts upon the cæcum the second day, but more frequently not until the third day or later.

This maximum having been reached, the oil enemas need no longer be used daily, and the quantity of oil used may also be reduced to one-half.

In local affections of the descending colon, the sigmoid flexure, and of the rectum still smaller quantities of oil suffice.

Defecation seldom follows immediately; usually one or more hours intervene; occasionally it is necessary to use an enema of water three or four hours after the oil. When the oldest fæces are fully removed, a further use of the oil is followed by thin stools often of bile color; this is an indication that the maximum of the oil's action has been reached. The uncomfortable sensation in the bowel experienced by many people is sometimes relieved by lying absolutely quiet upon the back; in other cases, no relief is found until defecation occurs and some of the oil has left the bowel.

The quality and chemical preparation of the oils are so varied that care must be taken to make use of as pure and clean an oil as possible. Either pure olive oil or poppy or sesame oil may be used. Impure oil causes the patient great discomfort.

The action of the oil upon the large bowel may be briefly summed up:

1. Softening and loosening the fæces.
2. Quieting and non-irritating, but, after a longer stay in the bowel,
3. Exciting peristalsis and evacuation.
4. Preventing absorption.

Professor Fleischer thinks the oil enemas specially valuable for regulating the bowels of anæmic and undernourished individuals.

CERTAIN NEW VIEWS CONCERNING THE DIAGNOSIS AND TREATMENT OF ROUND ULCER OF THE STOMACH.

The title heading this abstract is that given by Boas in the *Medical Record* for June 17, 1893, to a thorough discussion of round ulcer of the stomach. In conclusion, he states that as a therapeutic measure must be mentioned the well-known ulcer treatment of Leube and Ziemssen. It depends upon the principle of rest in bed, hot applications, and the administration of Carlsbad salts or water, in addition to restrictions in diet. This form of treatment has been practised mainly in Germany, and very correctly. The instances are rare in which hot applications are not as well borne as the so-called hydrotherapeutic forms. Of course, the treatment described above does not prevent relapses, for, although we are able in many cases to heal the local ulcer, we are not able to exert any influence on the as yet unknown predisposition. It is not possible to carry out in all cases the methods of Leube-Ziemssen, for several weeks' confinement to bed and room must necessarily demand a sacrifice, especially from those belonging to the working-classes, which but few persons are, in fact, able to make. In these cases Boas has been in the habit for over two years of prescribing a systematic nitrate-of-silver treatment. The use of nitrate of silver in the treatment of gastric ulcer is not new. Autenreith utilized this remedy in 1829, though only for cardialgia. It has been given mainly in pill form; rarely have solutions been prescribed. The opinions concerning the healing powers of this remedy on the ulcer itself vary considerably; but few modern authors have recommended the use of this substance as earnestly as its merits warrant.

Of course, in order to have results, the doses must be markedly increased. The author begins with solutions of .2 to 120, of which a tablespoonful is given three times daily; in the second week he increases to .3 to 120, and, if then the most prominent symptoms of the ulcer have not disappeared, he increases to .4 to 120. In all cases four bottles of the solution are to be taken. The drug should be diluted in a wineglassful of water and swallowed on an empty stomach. In order to free the mouth of the metallic taste, the patient is advised to gargle with a weak salt solution until the water is no longer cloudy. He never prescribes nitrate of silver in pill form. In order to determine the curative effect of nitrate of silver, he has had systematic algesimetric measurings carried out (in marked cases of gastric ulcer) in the painful areas of the epigastrium and dorsal regions, and convinced himself of the gradual disappearance of pain in these regions. He then gives curves to illustrate the nitrate-of-silver treatment obtained by means of the algesimeter. The pain in the pressure area diminishes gradually after the treatment with nitrate of silver has been instituted; that in the dorsal area quickest. Seldom is this remedy not well borne, or, in fact, not borne at all. The appearance of diarrhœa—one of the most frequent annoyances—is in so far not unpleasant to the patient, inasmuch as constipation has previously existed, at least in most instances. The writer regards the nitrate-of-silver treatment, as described above, as an exceedingly efficient and prompt method in the treatment of this condition. Especially is it to be recommended in cases where an ambulatory treat-

ment must, on account of special reasons, be carried out.

Such rebellious and resistant forms of round ulcer of the stomach are sometimes met with as to try sorely the patience of both physician and patient. Especially is this the case when, after a confinement to bed for several weeks, together with rigorous restrictions in diet, the patient is still tortured with violent pains. In such cases we hardly know who is in the most unpleasant position, the physician or the patient. For such persistent and intractable cases Boas finds the method of value which was recommended by McCall Anderson, and Donkin, of England, some years ago, for the treatment of ulcer in general,—that is, a ten to fourteen days' absolute abstinence from food, with only rectal alimentation. The latter is pursued in such a manner that the patient receives one injection every three hours, consisting of two hundred and fifty grammes of milk (one-half pint), two egg yolks, one teaspoonful of table-salt, one tablespoonful of red wine (or port wine or whiskey, etc.), one tablespoonful of flour. The whole is heated, and in the form of an injection is passed slowly into the bowel by means of a Hegar's tube. It is remarkable how quickly, by means of such an injection, the feeling of hunger is relieved. Last summer the author treated a physician for a stubborn form of gastric ulcer in which water injections alone were not sufficient to relieve the feeling of hunger, but certain nutrient substances which might be absorbed into the blood were necessary for this purpose. The treatment spoken of above was carried out by the English authors for three weeks. Boas only employs it from ten to fourteen days, and finds that sufficient. In all cases the spasmodic torturing pain disappeared almost as quickly as the treatment was instituted. The great thirst which appears at times can be relieved by soda or Vichy water. He uses no general medical treatment in his treatment, though there is no objection to the nitrate-of-silver method in connection with the abstinence method. After ten to fourteen days fluids may be first given, and soon thereafter solids. The writer has treated about a dozen cases of stubborn forms of ulcer of the stomach according to this method, and has had good results with all, with but one exception. However, he adds, that even after the use of this heroic method, for reasons already given, relapses may occur. The patients rapidly recover from their wearisome treatment, and if they can be prevented from indulging in excesses of food, this method proves invaluable in those cases in which other methods have proven fruitless. Inasmuch as it is not the object to go into details regarding the treatment of gastric ulcer, he does not discuss the value or uselessness of bismuth and morphine in this condition. He believes, however, that such drugs as morphine and other alkaloids of opium (especially codeine) have a marked palliative effect in the treatment of ulcer of the stomach.

THE DANGERS AND AVOIDANCE OF ERGOT IN OBSTETRICS.

In the *Columbus Medical Journal* for May, 1893, CROSSLANDS has an article upon this subject, in which, after quoting his own experience and the instructions given by the standard text-books, he reaches these conclusions:

Ergot is extensively used to prevent an imaginary danger. In cases where its use seems most indicated, better results are obtained without than with it.

Its positive action blinds us to its possible dangers. The evil it does is often credited to other causes.

Administered, it is a potential force over which we have little or no control.

When the natural forces are insufficient, there are other means which are efficient, harmless, and controllable.

When all other means fail, forceps is the final resort for delivery through the natural passages.

THE INTERNAL USE OF HOT WATER IN THE TREATMENT OF DISEASE IN INFANTS.

MCCONNELL (*Medical Record*, June 17, 1893) reports the following interesting case, showing the value of this therapeutic measure.

He was called one morning to see a three-months-old, bottle-fed child, and found it in convulsions. It was emaciated, and the convulsions were evidently due to the non-assimilation of its food. Previous to this, with the exception of a slight irritability of the stomach and bowels, it had appeared perfectly well to the parents. When the convulsions ceased, it commenced to vomit and purge. It could retain no kind of nourishment, not even cold water, and medicines did no good. As a last resort, the reporter ordered all the hot water the child could take, given through a nursing-bottle, and nothing else except a chloral and bromide mixture when the child was threatened with spasms, several of which it had since it was first seen. This was continued for twenty-four hours without any nourishment, the sur-

face being sponged every two hours with cold water. It vomited the first bottle of the hot water, but retained the second, and had the most peaceful sleep it had had for a long time. The condition of the bowels gradually improved, and vomiting gave very little trouble. At the end of another twenty-four hours a teaspoonful of cream, lime-water, and water was given every hour, then egg-water, and, finally, condensed milk. This was an extreme case, every one expecting it to die, yet it made a good recovery.

Another child, five months old, that had suffered from intestinal pain from birth, crying almost constantly unless it was nursing. It had some fever, the lungs were slightly congested and the bowels were hard and tender. Poultices were ordered and large doses of an opiate given, but it cried on. It refused the breast and did not like cold water. After ten hours the parents finally agreed to the administration of hot water. The child took it as if this were the very thing he had been crying for; he took it eagerly and in large quantities, and it gave him almost instant relief. He took little else for thirty-six hours, and it was the most important article of diet for one week. Since that time the child has had an acute attack of vomiting and purging, and the hot water has been tried again with the most happy effect.

Another child, five months old, well nourished, yet crying all the time except when nursing, was given the hot water between the nursing periods, and the remedy cured it completely, after paregoric, etc., had failed to give relief.

The importance, in all gastric and intestinal troubles in adults, of rendering the entire alimentary canal aseptic, "making it sweet and clean," is now almost universally acknowledged, and the results from this method of treatment in these frequent and distressing diseases have been so satisfactory that it encourages general adoption. Theoretically, nothing could be more rational, and practically the results have been beyond the most sanguine expectations. When the child is vomiting and purging, when its very life seems to be oozing away, there is an irresistible temptation to support life by giving nourishing food, yet experience has taught us that all food acts as an emetic or a purgative, and if it do not so act it is useless, the assimilative functions are suspended, and secretions and excretions are perverted. Hot water here is a stimulant, an antiseptic, a sedative, and a food. Water will support life for a time, transfusion of saline solutions has rescued individuals from the grave, and if you will flush the stomach of the vomiting and purging infant with hot water for twenty-four hours, withholding all foods, and then, in small and easily-digestible quantities, at short intervals, give nourishment, you will very often rescue it from the grave. The writer commences with pure hot water, then adds salt, and, when necessary, sugar. The child will drink this with avidity, preferring it to the nurse, it will produce a quiet, peaceful sleep, and the extremities, that were previously cold and clammy, will become warm and natural. The above are only a few of the cases in which, and to which, it is adapted; in fact, McConnell thinks there are few diseases of infancy in which the use of hot water will not prove a valuable aid.

THE EMPLOYMENT OF IODOFORM IN ABDOMINAL OPERATIONS.

TREVES (*Lancet*, June 10, 1893) publishes a valuable paper with the above title, of which the following is a brief abstract:

Sir Joseph Lister, in his admirable address on the "Antiseptic Management of Wounds," published in the *Lancet* a few months ago, drew attention to the very peculiar antiseptic properties of iodoform. He showed that the drug has little, if any, influence over the growth of bacteria outside of the body, and that if it be dusted over sterilized cultivating jelly in a test-tube, growth will take place from organisms which are contained in the iodoform itself. He then proceeds to consider the question in the following words: "But, though such is the case, it is nevertheless unquestionably true that iodoform exercises a powerful antiseptic influence upon wounds. The most probable explanation of this apparent anomaly is that suggested by Behring,—namely, that iodoform produces its beneficial effects not by acting directly upon the bacteria, but by inducing chemical changes in their toxic products. Behring has ascertained, as a matter of fact, that some of these toxines are altered chemically by iodoform, and at the same time rendered harmless. Two of his experiments, performed in conjunction with De Ruyter, may be quoted in illustration. A ptomaine obtained from a culture of pyogenic micrococci killed a mouse in twelve hours when injected pure into the peritoneal cavity, but proved quite harmless under similar circumstances when mixed with a little iodoform. Again, a sample of decom-

posing pus, which had fatal effects when introduced unmixed into the peritoneal cavity of a mouse, had no influence whatever upon the health of the animal if treated with iodoform, which meanwhile left intact the pyogenic microbes."

Treves has, for some time past, dusted the exposed tissues in deep wounds—such as are left on excising tuberculous glands — very freely with iodoform, and in the present paper gives his experience of a like employment of iodoform within the abdomen. It would be illogical to argue that the results obtained in the series of cases he reports wholly depended upon the employment of iodoform. They were cases, however, which are apt to be followed by certain dangers and complications, and it is probable that the uniformly uneventful course observed in each of the cases was not entirely unassociated with the use of this potent drug.

Mr. Treves then quotes four cases—one of pyonephrosis, with post-renal abscess; another of fæcal fistula following a dermoid cyst of the ovary; another of sessile ovarian tumor; and a fourth of abscess of the liver—in which he employed iodoform. He concludes his paper as follows:

"I could add to the above several other cases of abdominal section in which iodoform was freely introduced into the peritoneal cavity. These include examples of cholecystotomy, nephrectomy for hydronephrosis and resection of intestine (for both malignant disease and fæcal fistula), with immediate union of the divided ends of the bowel by sutures. These cases, however, do not present any special features. In the nephrectomy for hydronephrosis some diarrhœa commenced on the eleventh day and lasted three days. It may have been caused by iodoform, although the patient had no other symptoms, and exhibited throughout the whole of the after-treatment a perfectly normal temperature. As the kidney was of large size and the patient advanced in years, I cannot but think that his ready recovery may have in some measure been assisted by the protective influence of the iodoform within the abdomen."

THE USE OF ANTISPASMINE.

The *Journal de Mèdecine de Paris* for June 11, 1893, contains an account of the employment of this substance by Demme, of Berne. Antispasmine consists in the chemical combination of one molecule of the narceinate of sodium and three molecules of the salicylate of sodium. It occurs as a white, hydroscopic powder, very soluble in water, the solution being slightly yellow. The preparation cannot be exposed to the air if it contains much moisture. The therapeutic results which have been obtained with narceine itself are somewhat contradictory; but Demme, has demonstrated that antispasmine in various painful spasmodic affections, such as convulsive cough, whooping-cough, and in croup due to spasmodic affections of the larynx, is of marked service. He thinks that it is a medicament which deserves attention, particularly for use in children, as he believes that it has not the disadvantages of opium. The ordinary doses are from ¼ to 1½ grains, but in whooping-cough twice this amount may be given. It can be administered in this way:

℞ Antispasmine, gr. xv;
Distilled lemon-water, ʒiiss.

Sig —10 to 15 drops of this may be given once or twice a day with a little sugar and water.

Or the following may be employed:

℞ Antispasmine, gr. vii;
Distilled water, ʒi;
Cognac, ʒi;
Syrup, ʒv

Sig.—A dessertspoonful to a tablespoonful three times a day of this mixture will be found useful as a sedative in the cough of adults.

STERESOL.

In the *Journal de Mèdecine de Paris* for June 11, 1893, BERLIER, of Grenoble, makes a communication as to this new substance, which he believes is destined to be very useful in the treatment of diseases of the skin and mucous membrane.

Steresol possesses marked antiseptic properties and adheres closely to the mucous membrane of the skin. From his experience, Berlier believes that it possesses powerful bactericidal properties, and he has discovered that carbolic acid, which is its most active ingredient, is not completely evaporated from the area to which the steresol is applied for some twenty-four hours. When applied in the mouth, it rests upon the place to which it has been applied and resists the movements of deglutition. It does not cause pain in its application, nor does it possess any cauterant action. He has employed it thirteen months in the treatment of diphtheria, and has obtained eighty-one per cent. of recoveries in the anginose form of this disease. He states that, at the Hospital St. Louis, Hallopeau obtained very satisfactory re-

sults in the cicatrization of lupus which had resisted scarification and the application of sublimate compresses.

At another hospital, Jullien had obtained good results in a number of cases of eczema and ulcerative erythema. He believes that steresol maintains a condition of asepsis in the part to which it is applied, and believes that it is indicated in such maladies of the mucous membrane as diphtheria, coryza, and vaginitis, and also in the skin-diseases, particularly those which are situated in such regions that it is difficult to maintain the application of medicaments.

SUBCUTANEOUS INJECTIONS OF SALOL IN THE TREATMENT OF TUBERCULOSIS.

According to the *Journal de Médecine de Paris*, June 11, 1893, GRASSET has obtained very satisfactory results in the treatment of tuberculosis by the subcutaneous injection of salol. The advantages claimed are the decrease in the fever and night-sweats, with a simultaneous moderation of the cough and the number of bacilli. He employs salol with oil in the following mixture:

℞ Sweet oil, ℥i;
Salol, ℥iiss.

This is given with a syringe which contains five drachms. The injection is made underneath the skin, and Grasset asserts that within twenty minutes after its use salicylic acid may be obtained from the urine. The injections should be given in those portions of the body where the subcutaneous tissues are loose, as there is always slight induration produced, which, however, shortly passes away.

ON A NEW THERAPEUTIC METHOD, CONSISTING IN THE USE OF ORGANIC LIQUIDS EXTRACTED FROM GLANDS AND OTHER ORGANS.

DR. BROWN-SÉQUARD concludes an interesting article on the above topic in the *British Medical Journal* for June 10, 1893. After speaking of the importance of liquid expressed from all parts of the economy, and of the importance of the injection of dog's blood in various affections, he finally concludes with an explanation of the mode of action of the various organic liquids.

When a morbid state, as myxœdema, or a series of symptoms such as we see in cases of deficiency of the internal secretion of any gland, exists, it is very easy to understand how the cure is obtained when glandular liquid extracts are used; we simply give to the blood the principle or principles missing in it. In 1856 the author, finding that certain internal secretions are essential to life, came to the conclusion, much later on, thus to supply them to the organism out of order from the lack of certain principles; and believing that the morbid phenomena of old age are due to the deficiency of a certain internal secretion, he resolved to try to give the missing elements of that secretion by means of injections of a liquid extracted from a healthy gland of the same kind as the one which age had rendered faulty. The great movement in therapeutics, as regards the organic liquid extracts, has its origin in the experiments he made on himself in 1889, experiments which were at first so completely misunderstood.

As regards other explanations of the mode of action of the various organic liquids which are employed, there is no room to say more than that which follows: 1. Certain principles entering the blood, after having been injected under the skin, give to certain tissues nutritive elements which our food digested in the stomach and duodenum could not furnish; it may be so for the cerebral or medullary liquids. 2. The tonic influence certainly existing when the liquids from the sexual glands, or some other liquids in a less degree, are injected, explains how nutrition is improved, and how also morbid phenomena due to weakness may be made to disappear. 3. When the liquids extracted from the sexual glands are employed, as shown elsewhere, elements able to form new cells enter the organism, and thereby favorable organic changes can occur. 4. Organic liquid extracts resemble each other on account of the presence in the blood, and necessarily also in the various tissues, of elements coming from the internal secretion of all parts. It is not surprising, therefore, to find that any organ can give a liquid which might in a measure be used in place of any other. 5. When we know how great, how various, are the morbid, physical, or dynamic alterations the nervous system can produce, it is easy to understand that what it can do in one way it can also do in just the opposite way, so as to re-establish the normal state physically and dynamically. This may serve to explain the extreme variety of favorable effects that may be due to certain liquids which increase considerably (as is proved) the power of action of the cerebro-spinal centres.

ANÆSTHETICS IN LABOR.

In the *Northwestern Lancet*, Dr. A. B. Cates, of Minneapolis, contributes a paper upon this subject, which he read before the Hennepin County Medical Society. He discusses briefly the advantages and disadvantages of anæsthesia in the practice of obstetrics, and thinks that of its advantages in properly selected cases there can be no doubt. A condition of acute anæmia produced by exhausting loss of blood is a decided contraindication for both chloroform and ether. The writer has seen one death from ether, carefully administered for the evacuation of a uterus containing decidua of an abortion, when the heart appeared to be perfectly healthy. The previous loss of blood must have been very considerable, with comparatively empty blood-vessels. The absorption is overwhelmingly rapid.

Of the use of ether for obstetrical anæsthesia he has no experience. It is open to the same objections as chloroform in regard to inertia and post-partum hemorrhage. It is not so readily absorbed nor eliminated, and more care is necessary in regard to fire. One of its disagreeable after-effects is also the establishment of lactation twenty-four to forty-eight hours later than normal, and babies are more liable to be colicky after the first few nursings.

Again, ether cannot be used for relief of pain for so long a time as chloroform, as it is not so readily eliminated, and after long-continued use becomes a depressant.

Chloral should not be passed without its portion of praise. During the first stage, where the pains are irregular or spasmodic and the os not readily dilatable, its effect is very satisfactory. The best method of administration is in doses of 15 grains, repeated in from twenty to forty minutes, if necessary.

It is contraindicated in diseases of the stomach and heart, being especially dangerous in the latter affections.

Bromide of ethyl and cocaine have not been of sufficient benefit to claim any continued use or recognition in obstetrics.

THE COMPARATIVE ACTIONS OF EXALGIN AND ANTIPYRIN IN THE TREATMENT OF MENTAL DERANGEMENTS.

From a comparative study of thirty-nine cases of various mental disorders treated by exalgin and antipyrin, E. Marandon de Montyel (*Bull. Génér. de Thérapeutique*, April 30, 1893) arrives at the following conclusions:

1. Antipyrin may be administered to patients in soup, in order to avoid all sources of error and their knowing that they are taking any medicaments. Similarly, exalgin may be given in wine.

2. When administered during meals, according to Desnos, exalgin should be given for one month, in daily quantities of one gramme, in two doses, being careful that no disagreeable physiological effect is produced, since the drug exercises a noxious action on nutrition.

3. Like antipyrin, exalgin may influence favorably hallucinations and sensory disturbances (delirium) of reflex origin, but such an action is less marked than that produced by antipyrin.

4. Like antipyrin, exalgin is apt to aggravate considerably the hallucinations and sensory disturbances (delirium) *not* due to a reflex origin, and this noxious action is again more frequent and more marked than that of antipyrin.

5. Therefore, in the treatment of hallucinations and sensory disturbances (delirium), particularly of reflex origin, antipyrin is to be preferred to exalgin, owing to the fact that antipyrin exercises no influence on nutrition; whereas exalgin, on the contrary, produces a marked deleterious action on nutritive processes.

THE ACTION OF PHENOCOLL HYDROCHLORATE IN MALARIA.

Dr. G. Cucco (*Therapeutische Monatshefte*, April, 1892) reports his experiments with phenocoll hydrochlorate during two summer months, when many malarial patients came under his notice. Mindful of Golgi's directions for the most effective use of quinine, he gave the new remedy in the same way, so that it might be absorbed a few hours before the impending attack of fever. In a few cases he made comparisons of the action of quinine and phenocoll on the same individual, and also on different persons. The total results were: Of eighty-four cases of malarial fever, the phenocoll was effective in fifty-two, in twenty-one its action was doubtful, and in four cases it was ineffective. As to the remaining seven cases he is not yet able to report. Cucco gave the remedy in doses of from 15 to 22 grains a day, and 7½ grains per dose, without any special disadvantages. The examination of the urine, which was made in almost every case, showed an increase of uroerythrin, and otherwise nothing abnormal. In one case of malarial albuminuria it did not produce any bad effect either upon the kidneys or the general condition. The latter improved under good nursing.

Dr. Cucco believes that phenocoll is destined to a place in therapeutics as an excellent substitute for quinine.

THE THERAPEUTICS OF LEUKÆMIA.

DR. VEHSEMEYER (*Therapeutische Monatshefte*, April, 1893) describes a case of leukæmia which he treated. The child, when it came under his treatment in March, 1892, was nine months old, with poorly-developed muscles; it was anæmic; the spleen was enlarged, hard, and smooth. The liver could be felt a finger's-breadth below the ribs.

There was no doubt that rickets existed, but the profuse perspiration and dyspnœa being very characteristic symptoms of leukæmia, the blood was examined, and plainly showed that leukæmia was also present. The blood was bright red, very thin, coagulating with difficulty; the red cells were diminished; the proportion of white cells to the red was estimated as one to thirty; the count was made from undiluted dried blood, Vehsemeyer preferring this to the Thoma-Zeiss counting apparatus. Marrow-cells and polynuclear elements were most numerous.

Although himself a sceptic as to the microparasitic nature of the disease, Vehsemeyer ordered:

℞ Creosoti, ♏xv;
Alcoholis,
Aq. dest., of each, ♏lxxv.

Sig.—Three drops every three hours, increasing daily by one drop at each dose.

There was no doubt of the beneficial result of the medication, which was accompanied by the washing out of the intestine with half-percent. lysol solution. The temperature became normal; there was, after a few days, an entire cessation of the profuse perspiration; the spleen became smaller; the visible mucous membrane grew red and the waxy-white skin acquired more color, while the dyspnœa decreased; but the stridor continued in a degree seldom noted. The repeated examinations of the blood showed a lessening of the white cells, and the color became healthy.

The constipation continued unchanged; the washing out of the intestine produced hard fæces and much mucus, chiefly in lumps. The lymphatic gland could not be felt; there were no hemorrhages; no pains in the bones.

While the leukæmia improved, the rickets grew worse, and in April trouble with teething and bronchitis interrupted the treatment. On the 16th of May lymphatic gland swellings were first noticed, especially on the right side of the throat at first. In the course of the next day pea-sized tumors were felt in the inguinal, axillary, and cervical glands. Along with the appearance of these tumors there was a perfect flooding of the blood with white cells, so that the relative condition on the 25th of May was about one to three. The medullary cells were especially prevalent, these being also especially large,—chiefly five to six times larger than the red.

The general condition became very bad, and a new treatment with creosote brought no improvement. Vehsemeyer now gave tincture of *Berberis vulgaris;* at first a few drops a day, and then, encouraged by the result, a solution of Berb. sulph. in dilute alcohol. He also put the child on Rademann's infant food. The swollen glands he treated with a salve made from—

Ammon. chlor., gr. lxxv;
Camphoræ, gr. xv;
Adipis, ℥i.

In a few days this had reduced all the glands in size, and they became soft, and finally broke. These gland abscesses healed very quickly, so that there were soon but small remnants of the egg-sized tumors. In June and July this treatment produced a marked improvement in the child in every respect, the blood became normal, and the rickety symptoms had improved by the use of phosphorus. Early in August new teething troubles produced fever, and the general condition suffered, but the examination of the blood showed no change in it. On the 16th of August death followed after a convulsion, probably caused by a tooth about to erupt.

OBSERVATIONS ON THE NATURE AND TREATMENT OF ANGINA PECTORIS.

After an interesting discussion of the subject heading this article, DR. J. BURNEY YEO (*Practitioner*, May, 1893) reaches the following conclusions:

The true indications for treatment in angina pectoris may be thus summarized:

1. To maintain or improve, when defective, the general nutrition; to avoid all strain, physical and emotional; and so to relieve cardiac feebleness and excessive effort.

2. To relieve dyspeptic conditions and flatulent or fæcal distention of the stomach and intestines.

3. To forbid the habitual consumption of agents which may exercise a toxic action on the heart, such as tea, coffee, tobacco, alcohol, etc., or that may introduce or develop toxines in the alimentary canal.

4. To avoid and remove all gouty and other blood contaminations.

5. To give such tonic remedies as may improve the cardiac tone and lessen existing tendencies to cardio-vascular degeneration.

6. To relieve the paroxysmal attacks by sedatives and stimulants.

1. Anginal attacks occurring in persons who present signs of anæmia or wasting, and defective nutrition generally, must be encountered, in the first place, by careful attention to hygienic measures. Such patients must be removed from all causes of physical or mental strain. Their life must be one of complete repose of mind and body,—a repose alternated with gentle physical exercise, always stopping short of the slightest fatigue; it is good for them, however, to be much in the open air, driving, sailing, or reclining, and in a mild climate, when possible, so that they shall be protected from the injurious effects of cold, exposure to which certainly favors the occurrence of these attacks, not only by lowering the nervous force, but by checking free cutaneous circulation and elimination. Much attention should also be paid to their diet. It should be of the most nutritious nature, so far as is consistent with ease of digestion. An almost exclusive milk diet will be found to be of great service in many cases. When the digestive powers are greatly weakened, it may be necessary to have recourse to predigested foods, or to give with the food some artificial digestive agent, such as a trustworthy preparation of pepsin or pancreatin. A wineglassful of cream mixed with the same quantity of hot water, and a teaspoonful of sal volatile added, is an excellent food on getting up in the morning. The lighter kinds of fish,—soles, whiting, flounders, etc.,—simply grilled, and eaten with a squeeze of lemon and plain uncooked butter, are excellent; lightly boiled or poached eggs are permissible, if there is no gouty tendency; and also good consommé, flavored with vegetables; the lean of fresh meat passed twice or three times through a mincing-machine, and then lightly cooked in a bain-marie, is most digestible and nourishing, and of great value when there is masticatory difficulty, as is so often the case; fresh vegetables in the form of purées are useful, and so is the pulp of cooked fruits, as affording the necessary variety in the food and promoting the action of the bowels. Light milk puddings are also commendable. We should, moreover, see that a sufficient quantity of pure water is consumed, for eliminative as well as assimilative purposes; this is a point often overlooked, and the importance of a due ingestion of pure water as an indirect nutritive agent of the first consequence is too little insisted upon.

2. This first indication cannot, however, be thoroughly carried out without due regard to the second,—namely, to relieve dyspeptic conditions and flatulent and fæcal distention of the stomach and intestines. The coexistence of dyspeptic states must be treated in accordance with general principles; an alkaline bitter stomachic, composed of sodium bicarbonate, nux vomica, and calumba, an hour before the two principal meals, will be found valuable. Or, in other cases, a dose of dilute hydrochloric acid in compound infusion of orange-peel, after food, with or without the addition of a few grains of pepsin, may be given. Flatulent distention during digestion will often be effectually relieved by a pill containing a grain of thymol or a drop of creosote, taken directly after food. Regular evacuation of the bowels of fæcal accumulation is most essential, checking, as it does, the formation of injurious toxines in the intestines, eliminating waste substances, and relieving abdominal distention. For some persons the best aperient is a dinner pill, containing a grain or two of aloes, ½ grain of powdered ipecacuanha, a grain of nux vomica powder, and a grain of soap; this may be taken directly before or after dinner. Should such a pill prove insufficient, it may be followed occasionally by a teaspoonful of Carlsbad or Homburg salts in half a tumblerful of hot water, the next morning. In cases where there is sluggishness of liver, with bile-stained conjunctivæ, a few grains of blue-pill, or ⅛ or ¼ of a grain of podophyllin at bedtime, with 2 or 3 grains of compound rhubarb pill, may take the place of the dinner pill.

3. The next indication is also an important one; for certain of the slighter forms of angina are no doubt dependent on, and the more serious forms may be provoked by, the habitual use of certain substances which come, in course of time, to exercise a toxic action on the heart. The action of these toxic agents is all the more subtle because they may be taken for many years without apparently producing any injurious effect, and it is often difficult to convince a patient that what he has so long done with impunity has at length become injurious. This is particularly the case with tobacco, the toxic effects of which on the heart are often delayed until, or even after, middle age, when they will perhaps somewhat suddenly make themselves felt. With regard to alcohol, it is singular to observe how in different individuals its toxic and degenerating influence will sometimes fall on one organ and sometimes on another. The

cardio-vascular system in some persons is especially prone to undergo serious degenerative changes under its influence, while in others it almost entirely escapes, and hepatic and gastric troubles more especially arise, and in women the peripheral nervous system is most prone to be affected; but whenever anginal symptoms arise, we should always insist either on complete abstinence from alcohol, or on its very sparing use in a very dilute form. Tea and coffee are often provocative of the slighter manifestations of cardiac pain and discomfort, and it is noteworthy that they are particularly prone to aggravate, or rather to be aggravated by, any emotional disturbance. All these toxic agents must be forbidden so long as any tendency to anginal attacks exist.

4. The next indication is to remove and avoid all gouty and other blood contamination. The importance of elimination in the treatment of angina pectoris is universally admitted; and although the author does not go so far as Dr. Ord, who is reported to have said, "that if he were restricted to one remedy in the treatment of angina, he would prefer sulphate of magnesium to nitro-glycerin," he emphasizes the importance of a free evacuation of waste products from the system. When renal elimination is defective from the coexistence of renal degeneration, we must act freely on the bowels and on the skin. When the kidneys are sound, the free use of pure water, or some suitable mineral-water having some slight stimulating action on the kidneys, may avoid the necessity of free purgation; but in all cases a thorough daily evacuation of the bowels should be procured, and free action of the skin should be maintained by warm baths and frictions. In gouty cases and in all cases of defective elimination, a careful and spare diet, sufficient, but avoiding all excess, should be prescribed. Animal food should be taken only in great moderation, and fresh vegetables and fruit, carefully cooked and prepared so as to be made easy of digestion, should take its place. All alcoholic stimulants should be avoided, and when milk is not unacceptable to the patient, a few weeks of an exclusive milk diet may be advantageous.

5. In the fifth place the consideration of medicinal treatment is taken up, and first of the appropriate treatment in the intervals,—*i.e.*, of the constitutional condition underlying the paroxysmal attacks.

In anæmic cases and cases of temporary cardiac debility from removable malnutrition, we shall find the milder preparations of iron, combined with small doses of digitalis, of great service. In other cases we shall find arsenic of greater value than iron; and here, again, there is a general consensus among experienced physicians as to the value of arsenic in the treatment of cases of angina pectoris in the intervals between the paroxysms. Balfour asserts that arsenic is "indispensable in all forms of weak heart accompanied by pain." He advises that it should be given in the form of Fowler's solution, 3 to 5 minims, combined with iron and strychnine, twice a day, after food. We cannot too strongly insist on the value of strychnine as a cardiac tonic, especially in remediable states of cardiac asthenia. In highly neurotic cases much benefit may be derived from a combination of iron or arsenic and potassium or sodium bromide, in 5- to 15-grain doses; and in the same class of cases the valerianate of zinc is also of great service; it may be given in grain doses in a coated pill thrice daily, after food; and sometimes the combination of $\frac{1}{60}$ of a grain of phosphorus with it renders it a more valuable nerve-tonic.

He has already pointed out the usefulness of digitalis in the milder cases, and has seen long periods of immunity from attacks apparently brought about by occasional recourse to a mild iron tonic, with 5-minim doses of tincture of digitalis, or a pilule of Nativelle's digitalin ($\frac{1}{100}$ grain). The idea of giving a combination of nitro-glycerin and digitalis during the intervals is a concession to the vaso-motor hypothesis of the mode of causation of the attack, to which the next paragraph refers.

There is another remedy which is of very great value in the treatment of angina pectoris, especially when it is associated with obvious signs of cardio-vascular degeneration and of the gouty state, and that is potassium iodide. It checks the progress of degenerative changes, it stimulates glandular organs, and efficiently promotes elimination, and it appears also to prevent vaso-motor irritability; all these effects may depend on its eliminative properties. It is one of the most efficient antineuralgic agents in other forms of nerve-pain. It may be given in 5- to 15-grain doses, three times a day.

In cases traceable to malarial intoxication, if arsenic fails to relieve, quinine should certainly be given; but in such cases evidence of arteriosclerosis will usually be present, and will indicate the use of potassium iodide. It has recently been stated that cocaine, in doses of $\frac{1}{3}$ of a grain, thrice daily, has the power of entirely preventing attacks of angina; if a further experience should prove the accuracy of this statement, it would go far to support the view that the anginal attack is dependent on a hyperæsthetic condition of the cardio-sensory nerves.

6. It only remains to consider the indications for the relief of the paroxysmal attacks. Those who see in the causation of the anginal paroxysm the predominating influence of vaso-motor spasm consider that the main indication for the relief of the paroxysm is to administer medicinal agents which are known to have the power of relaxing the arterioles, and so lowering arterial tension, and, to that extent, to relieve the heart of a certain amount of the peripheral resistance it has to overcome. They therefore advocate the use of the nitrites, such as the nitrite of amyl, nitro-glycerin, and sodium nitrite. That these agents do relieve the paroxysm in many cases of angina is certain; that they do so wholly by their action as vaso-dilators is extremely doubtful. In the first place, they are capable of relieving the anginal attack when there is no certain evidence of the existence of vaso-motor spasm. Dr. Douglas Powell says he has found them "far more reliable in the graver cardiac cases than in the purer vaso-motory," but it is in the latter that they should prove most efficacious if the prevailing theory of their action were true. Balfour and Grainger Stewart say both have the power of relieving pain in other as well as in cardiac neuralgias, independently of their relaxing action on the blood-vessels; and this view Yeo adopts as the most consistent with the clinical history of this disease.

Nitrite of amyl is best administered by inhalation. A capsule containing three to five minims should be broken in a handkerchief and inhaled. In some cases, however, it entirely fails to relieve, although it may produce, in a most marked form, its characteristic effect of dilating the vessels. Nitro-glycerin is preferred by others, and it has been pushed until very large doses have been taken; as much as 35 drops of a one-per-cent. solution have been given and repeated at short intervals during an attack, and 7 minims three times a day in the intervals. We should begin, however, with much smaller doses,—1 to 2 minims of the one-per-cent. solution. Whitla recommends smaller doses—$\frac{1}{100}$ minim of nitro-glycerin—very frequently, so as to maintain the effect and avoid the headaches which often follow the larger doses. Sodium nitrite may also be employed for the same purpose; its effect is said to be more lasting than that of nitrite of amyl and nitro-glycerin. It is given in tablets of 2½ grains; one to four of these may be given for a dose. At the onset of an attack, in addition to the inhalation of nitrite of amyl, which, owing to the rapidity of its action, is the most suitable remedy to start with, we may give some warm diffusible stimulant, such as 30 minims of sulphuric ether, or a drachm of nitrous ether, with a drachm of sal volatile, or a little brandy in an ounce or two of peppermint-water. The feet and hands, if cold, may be placed in hot water. Balfour says he has been disappointed in the action of nitro-glycerin, and prefers inhalations of nitrite of amyl; and when these fail, as they often will, he resorts unhesitatingly to chloroform inhalations, and he adduces a great weight of evidence in favor of his contention that, "so far from being unsafe in cardiac disease, it is often of the greatest use in these cases." Sulphuric ether is used also for the same purpose; but, as Balfour says, "it is not rapid enough. Chloroform acts more quickly, even more effectually, and is perfectly safe." He gives it poured on a sponge in a smelling-bottle, and the patient is told to breathe it through his nose as deeply as possible. "In this way relief is obtained in a few seconds, and so soon as the narcotic influence is produced, the smelling-bottle drops, and with it rolls away all risk of any overdose." In severe and protracted attacks we may be obliged to have recourse to hypodermic injections of morphine; ⅙ or ¼ of a grain may be injected for a dose. Morphine seems to be better tolerated in cases of cardiac pain with a weak heart than when it is given to relieve other neuralgias under the same circumstances. When it is given to relieve cardiac pains there seems to be less risk of its causing cardiac depression. It is, however, a good plan to give some ether and ammonia mixture at the same time to counteract any such possible depression. The ethereal tinctures of valerian and of castor have been found useful. The inhalation of pyridine has been said to give immediate relief, but the unpleasant penetrating odor of this substance makes patients object greatly to its use. Bromide of ethyl has also been used in inhalation. The value of counter-irritation has elsewhere been shown by Yeo, in the form of flying blisters in those cases where a chronic aortitis may have involved contiguous branches of the cardiac plexus. A hot mustard poultice to the præcordial region may be useful at times; a hot application to the region of the heart in anginal cases is a very popular remedy in the Vienna school. The application of the continuous electric current along the course of the vagus in the neck and down the arm, in cases where a distinctly painful aura is experienced in the hand, has been found useful in warding off attacks. Leeches applied over the sternal region and repeated small bleedings from the arm have also been found useful.

CASCARINE.

According to the studies of LEPRINCE (*Bull. Génér. de Thérapeutique*, March 15, 1893), *cascarine*, the active principle of *Cascara sagrada* or *Rhamnus purshiana*, occurs in prismatic needles of a variable orange-yellow coloration. Some samples of cascarine are entirely red, without a trace of yellow. The coloration depends upon the degree of hydration, and probably also upon that of etherification. Cascarine is an insipid, odorless substance, soluble in caustic potash, soda, or ammonia, and gives with potash a reddish solution; it is likewise soluble in alcohol, with which it gives a yellow hue; also in chloroform, slightly so in ether, but is insoluble in water. The formula of the drug is given as $C_{12}H_{10}O_5$. Cascarine melts, decomposing at 200° C., and is entirely decomposed at 300° C., leaving a carbonaceous residue. The *hydrated* cascarine, with a composition of $C_{12}H_{10}O_5H_2O$, occurs in the form of a greenish-yellow powder, having a melting-point of 200° C., and possessing, in other respects, the same properties as the anhydrous substance. Exposed to the air, however, the hydrated cascarine absorbs moisture, and is turned into a brownish mass, which melts at 150° C., and presents the same characters as the alkaline extract of the crude cascara. Cascarine combines with *diacetic ether*, and is then represented by the formula $C_{12}H_8O_3(C_2H_3O_2)_2$; this latter appears in the form of yellow needles, insoluble in water and ether, soluble in alcohol, but less so than cascarine itself. When a rapid current of ammoniacal gas is passed through an alcoholic solution of cascarine to a point of saturation, crystals are formed. These crystals, dried and exposed to the air, lose the ammoniacal gas; placed then in a bottle, they slowly decompose into a black mass. This ammoniacal combination is represented by the formula $C_{12}H_8O_5(NH_3)_2$.

SOYA BEANS FOR DIABETES.

In the London *Practitioner* for May, 1893, DR. W. HALE WHITE reports his investigations as to the value of soya bean as a food for diabetics. After telling us that the name is *Soja hispida*, and that it is used in Japan and China, he gives a brief history of the literature. The soya beans are ground up and made into bread or biscuits. The biscuits keep for a considerable period of time, but the bread has to be made freshly every two or three days in order to prevent it from becoming rancid. White states that it is very palatable, and that the amount of starch which is present in it is so very small that it cannot be used for thickening soups or making puddings. The cases which Dr. White details show that the soya bread has acted very well in his hands. He regards the soya bean diet as quite as efficient as gluten bread diet; indeed, a little better in reducing the quantity of sugar in the urine and in the improvement of the patient's general health. He found no ill effects from its administration.

ASEPSIS IN OPERATIONS PERFORMED ON THE EYES.

"Asepsis in Operations performed on the Eyes" is the subject of a long report by NUEL presented to the French Ophthalmological Society in Paris, May, 1893 (*Revue Générale d'Ophthalmologie*, May, 1893). From this report we make the following abstracts:

1. Asepsis and Disinfection of the Subject to be operated upon.—A complete bath with soap may be necessary under special conditions. A mild purgative should be ordered the night before the operation. All efforts should be concentrated on the eye and its immediate surroundings. The region should be carefully washed with soap, and after this the antiseptic lotions applied for several days. The palpebral border must be carefully washed with the antiseptic solution. It is recommended that the same antiseptic fluid be used to freely irrigate the conjunctival sac, the lids being turned, if necessary, to secure complete exposure, and in sensitive persons there is no objection to the use of cocaine.

The choice of the antiseptic is limited. It should be an active one, but from the nature of its application must not irritate the conjunctiva. Nuel prefers an aqueous solution of sublimate, 1 to 2000, seldom weaker, although he is willing also to use 1 to 3000, or even 1 to 5000, especially if it has been previously heated, which increases its bactericidal quality. He thinks this washing of the conjunctival sac should be repeated for two or three days preceding the operation. Other antiseptics mentioned are certain mercurial salts; for example, the ioduret, 1 to 2000, recommended by Panas; oxycyanuret and cyanuret of mercury, 1 to 1500, recommended by Chibret; and trichloride of iodine, 1 to 1500 and 1 to 2000, according to Pflüger. He thinks the list might be still further increased, and does not doubt that more active antiseptic substances will be discovered which are less irritating to the conjunctiva. It appears that mixtures of various antiseptics are

capable of effecting ome progress in this direction, and he refers to pheno-salyl. The ideal substance is one which, while actively antiseptic, has no deleterious effect on the tissues. In his opinion, a four-per-cent. solution of boracic acid is not sufficiently antiseptic. Nevertheless, according to Bourgeois, there is much to be said in favor of boro-borax, a solution of boracic acid in an aqueous solution of borax. Pyoktanin seems not to have met with much favor.

After the operation itself is begun, the solution of sublimate is not to be brought in contact with the eye or the conjunctiva. The necessary irrigation is done with a physiological salt solution, sterilized by boiling. Other liquids—for example, a four-per-cent. solution of boracic acid—may be used, but Nuel does not believe them superior to the physiological salt solution. He deprecates the use of sponges, because it is not possible to render them aseptic, and prefers bits of gauze, which are sufficiently absorbent and even better than cotton.

He calls attention to the value of making a regular corneal section, which coapts easily and thus forbids the entrance of microbes, but he does not favor a conjunctival flap. He is particularly urgent that the palpebral edges shall not come in contact with the corneal wound. He thinks, in spite of the statistics of Panas and Chibret, that the ranks of those who perform irrigation of the anterior chamber after cataract extraction are rapidly thinning, and he refers to his own researches, which have shown that every solution, except the physiological salt solution, injected into the anterior chamber is capable of injuring the endothelium.

After the operation he prefers a dressing composed of a pad of sterilized cotton held in position by a moderately tight bandage. Although he believes that iodoform, and possibly aristol, while not bactericidal, prevent the development of microbes and diminish the secretion of mucus, their inconvenience as actual foreign bodies in the conjunctival cul-de-sac forbids their general use, except in cases in which there is danger of infection from surrounding sources.

After the operation he removes the dressing, at the end of forty-eight hours, with great care. If the dressing is dry, and there is no suspicious œdema of the outer edge of the superior eyelid, he removes it without separating the lids. If there is the least secretion, he bathes the margins of the lids with a piece of cotton dipped in sublimate solution. If there is noticeable secretion on the first day, and if there is the least swelling of the outer edge of the superior eyelid, he inspects the eye. If the edges of the wound are infiltrated, iodoform is instilled, and, if necessary, the application of the actual cautery is performed. Antiseptic precautions are particularly urged if the patient is in a depressed state of nutrition. All due care, so far as the lachrymal canal is concerned, is exercised.

He refers to the treatment of conjunctival catarrh, and enumerates remedies, commencing with nitrate of silver and ending with the weakest astringents, among the latest being alumnol. He doubts the value of the treatment—which has been recommended by Haab—of closing the canaliculus by means of the actual cautery, to prevent the passage of microbes from the sac into the conjunctival sac.

Referring to the matter of testing an eye for operation, he recommends that it be bandaged for several days, and if it stands the bandage well, an operation—for example, extraction of cataract—may be performed, particular notice being taken as to whether there is any secretion on the dressing.

2. Sterilization of the Instruments.—The difficulty with corrosive sublimate and carbolic acid is that they dull the sharp instruments. This objection does not seem to obtain with cyanuret of mercury, recommended by Chibret. He prefers a solution of two per cent. of carbonate of sodium in water, in which the instruments are boiled. Under ordinary circumstances, an immersion of three or four seconds in this alkaline water is sufficient to disinfect knives. The action of the boiling water sometimes dissolves the cement which joins the metallic blade to the handle, which can be obviated by having the entire instrument made of metal, although he prefers the bone or ivory handle. He sterilizes only the blade, and plunges the handle into an antiseptic solution, such as the cyanuret of mercury. Dull and metallic instruments may be put entirely in the boiling water.

3. Disinfection of the Dressings.—He does not believe that the impregnation of the dressings with antiseptic substances is satisfactory, and prefers to have the dressings made aseptic by sterilization with steam. The only way to sterilize a collyrium, in his opinion, is to boil it before the time of application.

In the discussion which followed, Chibret disagreed with Nuel as to the superiority of sublimate over other mercurial salts, and pointed out that cyanuret of mercury effects a superficial sterilization of longer duration than sublimate. He also is unwilling to abandon pyoktanin, which he believes has very distinct advantages.

Trousseau agreed with Nuel that the manner of using an antiseptic substance is more important than the substance itself.

Panas confined himself in the discussion to intraocular injections, but he still believes that it is safe to disinfect directly the field for operation,—namely, the capsule in which the lens has been lying,—and he prefers a solution of boracic acid, thinking that it causes no trouble with the cornea.

M. Dor is not an advocate of trichloride of iodine, which has served him very unsatisfactorily.

Parisotti, after boiling his instruments, immerses them in a jar filled with pure alcohol, and sterilizes the bandages with sublimate. His bandages are kept in a steaming chamber until they are needed.

Gayet considers washing out the anterior chamber perfectly permissible, using the fluid freely at a temperature of 38° C., and employing for the purpose a physiological salt solution.

ON THE TREATMENT OF GRAY ATROPHY OF THE OPTIC NERVE.

M. Galtier (*Annales d' Oculistique*, May, 1893), after referring to the fact that Brown-Séquard has mentioned locomotor ataxia as one of the affections which has been benefited by the injection of organic liquids, thinks, as a gradation of this disease to gray atrophy of the optic nerve is quite natural, that the report of a case in which he used these injections with satisfaction is advisable. It is unnecessary to give the case in detail, but it is sufficient to say that, after iodide of potassium and mercurial inunctions were used only with inconvenience to the patient, he began injections of testicular liquid after the manner of Brown-Séquard's recommendation. These were begun on the 27th of December, 1893. After two months' treatment, the patient's visual acuity rose from $\frac{1}{10}$ to $\frac{1}{8}$, the field for white improved, and the color-sense was benefited. It was the first case in which the reporter has seen improvement in visual acuteness under such treatment.

OPTIC NEURITIS AND OPTIC NERVE ATROPHY CAUSED BY THE TOXIC ACTION OF IODOFORM IN A CASE OF BURN.

This case was reported to the Ophthalmological Society of Paris by M. Valude (*Annales d' Oculistique*, May, 1893). A child, twelve years of age, received a large burn, covering the right side of the body. The burn, mainly of the third degree, covered the whole right side of the thorax, external surface of the right thigh, and posterior external surface of the right arm. There were also two burns on the left thigh. From the beginning the child was dressed with iodoform. Seven or eight months after the accident the following phenomena occurred: The general condition was much worse; there were diarrhœa, headache, and vomiting; the sight declined rapidly, and soon there was complete amaurosis. The patient was dressed constantly with iodoform. As the condition remained very bad, it was decided to stop iodoform and replace it by salol. The vomiting and headache disappeared, and with them the other painful symptoms, but the amblyopia continued.

On the 1st of March, 1893, Valude first saw the patient,—that is, sixteen months after the burning and eleven months after the beginning of the amblyopia. The pupils reacted to light. In the right eye the patient counted fingers at ten centimetres and in the left at twenty centimetres; no color perception. The visual field for light was not diminished. There was complete double white atrophy of the optic nerve, without any grayish halo, which usually follows neuritis. The vessels were slightly contracted.

The relation of the amblyopia to the iodoform intoxication seems to the reporter to be proved. He discusses the possibility of iodoform producing such a condition in the optic nerve, and speculates as to whether this was the cause or whether it was caused by the extensive burn.

THE EMPLOYMENT OF INSTILLATIONS OF SULPHATE OF QUININE IN THE TREATMENT OF ULCERATED KERATITIS.

Peuch (abstract *Recueil d' Ophthalmologie*, April, 1893) has experimented in the treatment of corneal ulcers with instillations of the neutral sulphate of quinine, according to the recommendation of Richard Williams, of Liverpool. He uses two solutions:

> Neutral sulphate of quinine, .10 gramme;
> Distilled water, 10 grammes.
>
> Neutral sulphate of quinine, .10 gramme;
> Neutral sulphate of atropine, .05 gramme;
> Distilled water, 10 grammes.

The first formula finds its application in ulcers of phlyctenular origin, without iritic symptoms; the second in cases complicated with iritis. To sum up, neutral sulphate of

quinine acts on the quantity and quality of the conjunctival secretions which accompany ulcers, especially in children, but it does not act any better in these cases than standard treatments. In infectious ulcers its full value becomes manifest.

THE TREATMENT OF STRABISMUS.

M. PARINAUD discussed this question at the May meeting of the French Society of Ophthalmology (*Recueil d'Ophthalmologie*, May, 1893), and divided the treatment into the *optical* or *functional* and the *surgical* treatment.

The optical or functional treatment naturally addresses itself to the initial causes of strabismus, and considers the question of accommodation and fusion. Accommodation, and through it convergence, can be acted on in two ways,—namely, by means of glasses and by mydriatics. Glasses are especially useful as a practical means, and he calls that treatment which is based on the use of glasses which correct the ametropia the *dioptrical* method.

In converging strabismus of hypermetropes he instils a solution of atropine, and recommends that these instillations be kept up for at least a week. If the eyes straighten under the influence of the mydriatic, it is likely that the optical treatment will be efficacious. This should consist in prescribing glasses which totally neutralize the hypermetropia and astigmatism, and these glasses must be worn constantly. It sometimes happens that strabismus which has yielded to the action of atropine does not immediately disappear with the use of glasses, this being particularly the case when there is a little astigmatism which has not been corrected. The contrary is also true that cases of strabismus on which atropine has had no effect rapidly disappear after the glasses have been worn. It does not necessarily follow because glasses do not give immediate results that they are useless, and it often happens that the action of glasses, insufficient at first, may manifest itself after several months. Atropine cannot take the place of glasses, except in a small number of cases. It is, therefore, only an auxiliary to the dioptrical treatment, but has especial use in the case of young children who cannot wear glasses. He has had no experience with the usefulness of eserine.

In the diverging strabismus of persons affected with myopia, the preceding remedies have little effect. The principal reason of this is that the treatment in this case is not seconded by the natural evolution of diverging strabismus, which, differing from converging strabismus, has no tendency to diminish with the lapse of time. In the converging strabismus of myopes, concave glasses are often prescribed with good results. These concave glasses diminish excessive convergence in cases of this kind, at least for fixation at a distance, while they should really augment it on account of the effort of accommodation which they impose. To understand this paradoxical action of the glasses, we must distinguish in the different forms of strabismus between the dynamic and static relations of these two forces,—that is to say, the synergy of action which unites them in their relations to a state of repose. In the converging strabismus of hypermetropes the convex glasses act by virtue of dynamic relations; in diminishing the accommodative efforts we diminish the effort of convergence. In the converging strabismus of myopes the concave glasses affect the state of rest, and that is why they modify excessive convergence, especially for fixation at a distance,—that is to say, in a state of rest.

The processes which act through the medium of fusion are divided into two classes: those which facilitate binocular vision and those which induce artificially the same binocular vision. Prisms worn like spectacles act by facilitating binocular vision. It is not on account of the training they afford the muscles that they are useful, but by assisting binocular vision, and thus favoring the regular development of the innervation of convergence. In the beginning of the diverging strabismus of myopes, prisms with the base towards the nose, combined with concave glasses, may be of service. In converging strabismus in some cases it is equally advantageous to combine convex glasses with prisms having their base towards the temple. While convex glasses relax accommodation and convergence, the prisms exert a favorable influence on fusion by displacing the image on the retina.

We can obtain the same reaction as with the prism by using the stereoscope to throw the image of two similar objects on each retina, the fusion of which will give the impression of a single object. With the same instrument a special inducement to fusion may be obtained by using two images of different perspectives capable of producing the "stereoscopic relief." These different exercises form the basis of the treatment recommended by Javal, which, according to this author, is divided into three stages: 1, the production of diplopia; 2, the fusion of double images; 3, the extension of binocular vision to all positions of sight. The treatment with the stereoscope is not always suf-

ficient in itself to remedy strabismus, but is especially useful as an adjunct to the cure obtainable by the dioptrical or surgical treatment.

The surgical treatment of strabismus is divided into tenotomy and the various modifications of capsular and muscular advancement.

THE EXTRACTION OF CATARACT WITHOUT IRIDECTOMY: ITS ADVANTAGES AND DANGERS.

Dr. Galezowski (*Recueil d' Ophthalmologie*, May, 1893) writes as follows: From the day that antisepsis put us in possession of powerful means for promoting the cicatrization of wounds, he felt impelled to return to the extraction of cataract without iridectomy. He believed it to be necessary to change the shape of the wound, and instead of performing the large Daviel section, he gave the wound a semi-elliptical shape, the puncture and counter-puncture being placed in the opaque edge of the cornea, equally distant from the Desmares puncture and that of Von Graefe; while, on the contrary, the apex of his section corresponded to the apex of Daviel's section. Since 1878, the time of his first researches on the subject of the semi-elliptical section for the extraction of cataract without iridectomy, until May, 1893, he has been able to apply it in 1934 cases, and presents the following table:

Sex: men, 1139; women, 795. Cataract: without iridectomy, 1599; with iridectomy, 261. Secondary cataract: discission, 368. Iritis, 41; hernia of the iris, 15; phlegmon, 18; irido-choroiditis, 24.

After an analysis of the table, he thinks he is able to say to-day, with all frankness, that while the process of extracting a cataract through a semi-elliptical incision has great advantages, it also presents great difficulties, which should be known in detail in order to be avoided. This is the object of his present communication. The following are the advantages of extraction of cataract without iridectomy:

1. Preservation of the round shape of the pupil, as well as the functions of the pupillary sphincter. The eye thus operated upon is less dazzled by bright light, and he thinks that in a large number of subjects operated upon, both myopes and emmetropes, the correcting glasses are diminished by one or two dioptrics. In this manner he has often obtained normal visual acuteness with seven or eight dioptrics, while in extraction with iridectomy, nine or ten or eleven dioptrics were used for the same correction. For reading, he obtains normal acuteness with these patients with convex spherical glasses thirteen or fourteen dioptrics, using appropriate cylindrical glasses with them; whereas, in cases of extraction with iridectomy, the same result can be obtained only with the aid of the convex spherical glasses fifteen or sixteen dioptrics.

2. The easy removal of the crystalline lens without fear of prolapse of the vitreous body constitutes a great advantage. This accident is rare, providing the corneal wound is at a certain distance from its edge and from its peripheral border. The puncture and counter-puncture being located in the sclerotic border, we gain a millimetre and a half on each side of the corneal flap, and thus have a greater opening laterally by almost as much as is lost in the height of the flap. Furthermore, as the wound is not as peripheric as the one made by Von Graefe's method, the pressure applied to the eyeball in order to loosen the cataract and drive it out has less tendency to cause laceration and prolapse of the vitreous body than with the former process. This prolapse of the vitreous is still less to be feared, as he always removes the blepharostat as soon as the corneal incision is completed. In delivering the lens, he presses on the lower part of the eyeball with the thumb of his left hand through the lower eyelid, and with the curette on the upper part of the eyeball and above the cut. As the crystalline lens, freed from its capsular cavity, presents in the wound, he diminishes the pressure, and thus avoids a sudden expulsion of the cataract.

3. It is of importance to make the incision in the cornea and perform the rest of the operation quickly. Half a minute is sufficient for the first part of the operation. Immediately he removes all instruments from the eye in order to expel the cataract by simple pressure on the eyeball. Thus the patient is not harassed by the tweezers and blepharostat in his eye at the most critical moment of the operation, which is when the crystalline lens is coming out.

His opinion in regard to the use of cocaine in operations for cataract is this: The less it is used the better, and consequently an operation for cataract should be as short as possible. It will be all the better for the peace of the patient and for the closing of the cut. Simple extraction of cataract never gives rise to hemorrhages, whether in case of arthritic, gouty, or diabetic patients. Such accidents are more to be feared in peripheric extraction with iridectomy. He thinks that intraocular hemorrhage

is to be explained by section of atheromatous vessels of the iris near its ciliary ligament, and hence this accident is not at all to be dreaded in simple extraction or with sphincterotomy.

The dangers to be avoided are of different kinds, and may occur at any stage of the operation. He makes the puncture on the opaque border of the cornea, and after cutting the capsule, makes the counter-puncture. A grave difficulty may arise when the incision is made in the capsule,—namely, the cortical layers of the lens may enter the anterior chamber and render it impossible to properly execute the counter-puncture. This accident must be prevented by making a proper diagnosis of the kind of cataract which is to be operated upon. He is quite willing to have incision of the capsule made in the second stage of the operation before the expulsion of the cataract. The important thing is to make the opening as wide as possible. When he performs the capsulotomy in the first stage of the operation, he thrusts his knife far behind the iris, and moves the point rapidly from the base to the top, obtaining a large capsular opening; if necessary, using artificial light to show that he has done his work completely.

2. The cutting of the semi-elliptical section, which he considers indispensable, presents serious difficulties. After the counter-puncture the iris is often projected forward, and consequently may be wounded. To avoid this, the shape of the cut should be made slightly oblique, at the same time bringing the edge of the knife as far forward as possible.

3. The exit of the crystalline lens presents difficulties, as sometimes it does not present in the wound after what seems to be a proper section. This can only be accomplished by making a slightly larger flap, which is done by bringing the puncture and counter-puncture a little nearer to the horizontal diameter and the sclerotic border.

4. Rupture of the iris may take place, which he thinks can be avoided by disengaging the two angles of the wound and pushing back the iris with a small blunt probe made of gold. If the iris has been much contused during the delivery of the lens, he performs a sphincterotomy.

PALPEBRAL ECZEMA.

TROUSSEAU (*Recueil d' Ophthalmologie*, May, 1893) recommends in cases of aggravated eczema the use of antiseptic treatment in the daytime, and at night a poultice of rice fecula made under the conditions of perfect asepsis. If the eczema oozes a good deal there should be antiseptics used by day, and at night an application of powder composed of bismuth, oxide of zinc, or boracic acid. Fissures should be touched with a brush dipped in a three-per-cent. solution of nitrate of silver. If the irritation is violent, compresses steeped in alcoholized water should be applied to the eyelids, or they should be sprayed with carbolized water one-half per cent. and sulphate of quinine given internally. Menthol salve may be used with success, but it is too severe, except in torpid cases free from irritation. Ointments should be used only in the last period of eczema, at the time when a fine desquamation sets in, and only with the greatest care. Nothing is more difficult than to definitely indicate an ointment for palpebral eczema. The least irritative ointments should always be tried first. This is the scale which Trousseau adopts: Pure white vaseline, fresh lard, so highly recommended by Brocq, bismuth, oxide of zinc, ichthyol, yellow oxide, and oil of cade. The antiseptic treatment, in his opinion, is always the foundation, and he believes that any antiseptic of the same strength as sublimate would succeed as well, and that some other one less irritating and with the same degree of activity would be preferable. He believes that the part played by antiseptics in the cure of palpebral eczema is important, not only from the point of view which ascribes a parasitic origin to eczema, but also from that which looks upon it purely as a local disorder requiring local remedies.

He regards his contribution to the treatment of palpebral eczema as a plea for the acceptance of the parasitic origin of eczema, an origin which the present French school is much disposed to accept in certain eczematous conditions which Unna describes under the name seborrhœic eczema, and which really includes most of the forms of palpebral eczema.

REMOVAL OF THE LACHRYMAL GLANDS.

H. TRUC (*Archives d' Ophthalmologie*, May, 1893), writing concerning the indications for the removal of the lachrymal glands, concludes that removal of the lachrymal gland is an operation which merits consideration in the therapeutics of simple or complicated epiphora, and those cases which are obstinate to the usual means. It is an operation to be held in reserve and as a last resource. Palpebral removal is an operation of choice. It is suitable for simple cases and for the greater number of compli-

cated cases. Orbital removal is an operation of necessity, and is applicable to complicated cases of extensive conjunctival disease, and in certain cases of serious blepharitis with hypertrophy of the mucous membrane and marked ectropion.

STATISTICS OF OPERATIONS, WITH REMARKS.

DR. A. TROUSSEAU (*Bulletin de la Clinique Nationale Ophthalmologique de l'Hospice des Quinze-Vingts*, 1892; Paris, 1893), during the course of his clinical service at the Quinze-Vingts in 1892, performed four hundred and fifty-two operations, as follows:

Cataracts	234
Secondary cataracts	12
Sclerotomies	3
Iridectomies	62
Enucleations	16
Staphylotomies	6
Strabisotomies	33
Operations on the eyelids	42
Operations on the lachrymal ducts	14
Diverse operations	30

Throughout the year he has used his simplified process for cataract extraction, which consists in using a knife as the only instrument, and absolutely rejecting forceps and blepharostat. By this means, in his opinion, he lessens the chances of infection and of giving pain. He is a firm believer in simple extraction, and thinks that all attention should be given to suppressing the most important accident of this operation,—namely, hernia of the iris. His statistics are clear from panophthalmitis, but not entirely from infectious symptoms, as he has had one case of purulent irido-cyclitis in which he was able to check the process by warm compresses of sublimate and repeated instillations of atropine, but was not able to preserve vision. He lost one eye from intraocular hemorrhage, which began five or six hours after operation. The next day the coagula were removed and the eye dressed antiseptically, and although it atrophied and became sightless, it was satisfactory in appearance; hence he does not believe that immediate enucleation is justified in case of vitreous hemorrhage after cataract extraction. If possible, he operates by extracting congenital cataracts after a preparatory iridectomy. He does not do secondary operations frequently, and strongly urges complete antisepsis and avoidance of irritation to the iris. He is ready to indorse discissions if a sharp knife be used instead of a cystotome. He sometimes performs inferior iridectomy in case of obstruction of the pupil by thick masses or by capsulo-iritic *débris*.

Only three sclerotomies appear in his list performed on glaucomatous eyes, because he believes sclerotomy is always inferior to iridectomy, and that it should be used only as a secondary operation. Iridectomy, in his opinion, is indicated for acute or subacute glaucoma, but is useless in chronic glaucoma. He thinks it is questionable whether iridectomy is beneficial when directed against chronic synechias or repeated iritis. He does not believe that it prevents relapses, and he has seen diminution of visual acuity follow its performance. Two iridectomies performed with the object of arresting the progress of corneal staphyloma, failed to give the desired result.

It is his custom to perform few enucleations, confining himself to the removal of such eyes as are positively lost, or are very painful, or likely to produce sympathetic inflammation. In cases of serious traumatism, with extensive disorganization of the globe, he never enucleates immediately. A complete antisepsis of the wound area is effected, and he has been astonished to find what a satisfactory appearance such an eye may assume after several weeks of care and dressing.

The following is his method of operating for staphyloma: He begins by completely detaching the conjunctiva all around the staphylomatous cornea, then passes threads through the edges of the conjunctiva, which later on are knotted together. He then punctures the staphyloma at its base with the knife and transfixes it, while he directs his attention to the top, cutting a section qualified to supply the loss of substance which will be created by removal of one or both portions of the staphyloma, evidently of that one the preservation of which seems most difficult or least advantageous for the ultimate appearance of the eye. In the cases which he has previously described he removed an inferior portion of the cornea close to the sclerotic, preserving above a large expanse of the membrane, so that when brought in contact with the inferior corneo-scleral limb it stops up the orifice left by the removal and adapts itself to this border. He does not try to make corneal sutures, but confines himself to closing the gaping wound by applying to it the preserved portion of the cornea, which is easily effected by pressing the conjunctival sutures so that the traction exerted by the threads gradually reduces and flattens the corneal section. When the operation is finished, the cornea is completely covered by the conjunctiva, and cicatrization is effected under the

protection of the conjunctival covering. Six to ten days later he removes, one by one, a day apart, the conjunctival sutures, beginning with the one situated beside the base of the corneal section. When the sutures are removed the conjunctiva parts and shows the cornea joined to the sclerotic and somewhat flattened. In his two cases the corneal transparency was maintained.

Capsular advancements performed for the cure of strabismus have usually been successful in his hands, De Wecker's method being preferred.

Grattage and brossage in trachoma have not yielded in his hands the brilliant results which have elsewhere been announced. He has seen improvements, but no cure. The use of Knapp's forceps has yielded him only improvements. He uses the methods, however, only in serious cases. He has had great satisfaction in treating mucocele and dacryocystitis by scraping the sac after incision and immediate union of the wound.

Dr. Valude (*ibid.*) contributes his experience in the same hospital. Referring to the question of chalazia, he believes that the best method of assuredly getting rid of the small neoplasm is to take it out through the skin surface and not from the conjunctival side. After the application of a Desmarres forceps he transfixes the tumor and the skin through and through, and with two cuts of a pointed scissors removes the two halves of the neoplasm. A rapid cleaning with a curette empties the little tarsal cell in the cartilage. He considers that suturing is not safe if the wound of the skin is two centimetres in length. Subcutaneous injections of cocaine render the operation painless. He performs practically the same operation for sebaceous cysts of the eyebrow. [It has long been the custom of many operators in this city to remove chalazia through a cutaneous incision, and always with good results.—ED.]

In operating on the lachrymal apparatus he prefers scraping of the sac in chronic dacryocystitis. He has also tried solutions of chloride of zinc very successfully. After he has opened the sac and scraped it out, he covers it with a bit of cotton dipped in iodoform. This is changed once in four days, and the base of the cavity painted with sublimate (1 to 100) or chloride of zinc. The treatment lasts fourteen days. He prefers this method to that employed by Terson, who operates through the natural channels, or De Wecker, who attempts immediate union through the skin-surface.

Referring to trachoma, he believes that the various methods must be used according to cases,—that is, brossage, curetting, and scarifications perform wonders in some cases, but not in all. Sometimes excision, according to the method of Galezowski, is indicated. For granulations of average intensity he advocates repeated rubbing with pumice-stone, and is not willing to give up sulphate of copper.

He sides with those who believe that enucleation should be postponed as long as possible, and when operations may take its place. His opinion of sclerotomy is that it is an operation which is not very satisfactory.

He is less and less in favor of touching ulcers with the actual cautery, and quotes the expression of Snellen, that the cautery injures the cornea more than the ulceration. He makes an exception in ulcers complicated by purulent dacryocystitis which threaten the eye with panophthalmitis, and which must be stopped at any cost. Independently of these, he believes that a dry, occlusive, permanent dressing is a sovereign remedy.

He has had satisfactory results with the simple extraction of cataract, without, however, forcing the indications. He thinks that operations for secondary cataract are more to be feared than prolapse of the iris, or panophthalmitis, which occur so rarely. He prefers to attack the membrane with forceps scissors, and to perform a capsulotomy or an irido-capsulotomy, according to the case. So far as the muscles are concerned, he believes that capsular advancement combined with tenotomy is sufficient for most cases.

ASEPSIS IN THE OPHTHALMIC DEPARTMENT OF THE WÜRZBURG UNIVERSITY.

STROSCHEIN (*Graefe's Archiv*, xxxix., Part I., p. 256) describes the method of asepsis in the Ophthalmic Department of the Würzburg University. His article, as abstracted by Mr. Story in the *Ophthalmic Review* for May, 1893, follows:

Antiseptics are of but doubtful value in ophthalmic surgery, as the conjunctiva and cornea, the parts to be disinfected, do not tolerate the usual solutions sufficiently for satisfactory disinfection. The best and most popular antiseptic is corrosive sublimate, in solutions of from 1 to 5000 to 1 to 4000. This, according to Weeks, destroys the pyogenic staphylococci and streptococci in from two and a half to three minutes. But irrigation of the eyeball for such a length of time produces injurious effects on cornea and conjunctiva, and it is probable that

the time required to destroy the cocci in a mucous membrane must be considerably greater than in a test-tube.

The fact that excellent results have been obtained from irrigation with boric acid, whose antiseptic action is hardly greater than that of salt solution, renders it probable that the other antiseptic solutions employed produce their good results, not by destroying the septic germs, but merely by washing them away. The results of irrigation with sterilized salt solution are, that if the conjunctiva contains many germs, their number is greatly reduced, and if it contains but few germs, hardly any can be detected subsequently. Complete disinfection cannot be obtained by either salt solution or antiseptic lotions.

For non-cutting instruments, boiling in salt solution is the best antiseptic, but cutting instruments have their edges rapidly spoiled by this treatment, and it is sufficient, in their case, to rub the instruments with cotton-wool soaked in a mixture of equal parts of alcohol and ether, subsequently washing them in five-per-cent. carbolic acid solution.

Stroschein has found only three out of twelve Graefe's knives (taken straight from the instrument-makers when they had been sharpened) perfectly free from germs, but has found the same instruments, days after use (followed, of course, by disinfection), perfectly sterile. A similar observation was made in the case of other cutting instruments,—viz,—iridectomy-knives,—but four out of five Beer's knives in use were found infected. He accounts for the absence of sterility in the Beer's knives by the presence of the maker's stamp on the blade of the knife. This unevenness prevents perfect cleansing of the instrument.

Experiments were made with Graefe's and Beer's knives as follows: First, the instrument was infected with pus, or cultivations of pyogenes aureus, or of another resisting bacillus. It was then left to dry, and subsequently disinfected by rubbing with wool soaked in a mixture of equal parts of alcohol and ether and a few drops of ammoniac; after this it received a fresh rubbing with another piece of wool soaked in five-per-cent. carbolic solution, the handle being similarly treated, and it was finally left in sterilized salt solution. This treatment produced perfect asepsis in every case, except in that of some of Beer's knives, for the reason mentioned earlier.

The operator must disinfect his hands before he disinfects his instruments, by hot water and soap and nail-brushes, followed by washing in alcohol and corrosive sublimate solution, without subsequent drying. All solutions, cocaine, etc., are to be sterilized by boiling, and all dressings by steam. The patients are washed the day before operation, and the eye to be operated on bandaged up with corrosive sublimate solution as a wet dressing. Immediately before operation the lids are well washed with soap and sterilized water, very special attention being given to the cilia and the lid border. Complete disinfection of the cilia seems impossible, but painstaking washing with sterilized salt solution effects as much as can be done by antiseptics. The conjunctival sac is carefully and somewhat forcibly washed out with sterilized salt solution before the operation, and also afterwards, in order to remove blood-clots, etc. The dressings are either dry or soaked in the same salt solution. In cataract cases both eyes are bandaged, and the dressings changed in from six to seven hours after the operation.

Since the above method has been adopted at Würzburg the results have been most satisfactory,—as free from sepsis as under most rigorous antiseptic treatment, and with less unpleasant reaction than is experienced when corrosive sublimate is employed to disinfect the conjunctiva and wound surfaces. The bandages are usually discarded on the third day, and the average length of treatment in forty-seven cases was not more than ten days,—*i.e.*, the patients were discharged on the tenth day.

WHAT BENEFIT CAN EAR PATIENTS DERIVE FROM NASAL TREATMENT?

H. GRADLE (*Journal of the American Medical Association*, June 3, 1893) arrives at the following conclusions:

1. Acute suppurative inflammation of the middle ear, if not treated, has a tendency to become chronic, the tendency increasing with the age of the patient.

2. Chronic suppuration of the middle ear rarely heals without ear treatment. Neither acute nor chronic purulent ostitis are influenced by nasal treatment, but the liability to relapses after their cure is decidedly lessened by the removal of naso-pharyngeal anomalies.

3. Acute catarrh of the middle ear will generally terminate in complete recovery under aural treatment and sometimes even without it, provided there are no persistent nasal or pharyngeal lesions. But when these are present the disease is more likely to become chronic in spite of aural treatment, and in many instances can either not be cured, or, if improved, will

speedily relapse unless the normal state of the nose and throat is restored.

4. Proliferating or adhesive disease of the middle ear is the consequence of retro-nasal catarrh, and its course is determined by the course of the disorder causing it. Aural treatment alone is practically useless in this form of trouble, while nasal treatment, if successful so far as the catarrh is concerned, will also arrest the ear-disease. The restitution of hearing, however, depends on the length of time the disease has lasted, and is often aided by ear treatment after the cure of the retro-nasal catarrh.

THE TREATMENT OF SENSITIVE SPINES.

LOVETT (*Boston Medical and Surgical Journal*, vol. cxxix., No. 2) does not give a better name for the disease the treatment of which he describes than that given in the title of the abstract. He states that it appears as a sensitive and painful condition of the spine, manifested by sensitiveness most often over the spinous processes of the vertebræ, pain on motion and manipulation, and by the general symptoms of neurasthenia. Although the condition is evidently not due to organic change, it persists for years, varying but little, and leading generally to a bedridden and helpless condition in the severer cases. Usually it is possible to trace the beginning of the cases to some injury; in other cases there seems to be no traumatic origin, yet the same symptoms. The injury is usually a fall, or more or less severe jarring of the spinal column. In some cases it begins slowly, perhaps after some exhausting disease. At times this pain and sensitiveness spread over the whole back, but mostly it is limited to a certain area over the vertebral column. It may be cervical, or it may be confined to the sacrum and coccyx; and a fairly common situation is over the sacro-iliac joints, but the most common appears to be in the dorsal or lumbar region. The sensitiveness is apparent to both deep and superficial pressure. It is often sharply localized, and the pain is generally limited also to the area affected. Standing aggravates the pain, as do also riding in a carriage or car, and sitting in an uncomfortable chair, so that relief is sought by recumbency. At times the pain persists during recumbency, but even in these cases it is made worse by sitting, standing, or walking. The spine is perfectly flexible, but motion may be voluntarily restricted in certain directions on account of the pain caused. In the severer cases the spine may be, and generally is, held quite rigid over the affected area, either by voluntary or involuntary muscular effort. There is no angular deformity, such as one finds in Pott's disease, although unnatural attitudes may be assumed on account of the sensitiveness, such as a rounding out of the whole back in the dorsal region or a slight lateral deviation. The most important local condition is that of muscular weakness, both general and of the spinal muscles. It is to be noted on inspection and by measuring the strength of the muscles of the back by manipulation. This theory of muscular weakness explains the pain, on the supposition that, in the absence of proper muscular support, the body-weight comes more upon the posterior spinal ligaments, and the fasciæ and aponeuroses of the back, than it should, and that this is the immediate and primary cause of the pain. Just as in flat-foot, when first the muscular support gives place to ligamentous support, intolerable pain is to be felt in the ligaments. This does not and cannot be assumed as the cause of every case of spinal sensitiveness, for it occurs at times in patients with muscles of normal strength, as measured by an apparatus for testing the back muscles.

The general condition of these patients is of the utmost importance and significance. In most cases they show marked neurasthenia. They are, for the most part, young and middle-aged women of nervous temperament and poor development. As a general rule, they are badly nourished. They walk feebly and stiffly, and often they are entirely bedridden.

As to treatment, the severer cases and those in which the general condition is markedly poor should be put to bed for some time, and treated by the Weir Mitchell plan of rest and feeding. This is indicated both as a means of improving the general condition and also to quiet and rest the irritated spinal ligaments by removing the strain from them. The patients are kept entirely recumbent, and made to use the bed-pan in the more severe cases. They are fed every hour or every two hours, taking in the twenty-four hours eight to fourteen eggs, besides milk, beef-tea, and meat. They are massaged gently every second day; and after a few days of this treatment, the use of faradic electricity is gradually begun on the day when massage is not given. The back is excessively sensitive, and the current is mildly applied, avoiding at first the sensitive spots. Massage and electricity rapidly diminish the sensitiveness of the spine.

After a continuance of this treatment for days or weeks, according to the general condi-

tion of the patient, she is allowed to sit up in an easy-chair for five minutes, with the back supported; and then the time is rapidly increased.

At this time it is common to begin with exercises calculated to develop the erector spinæ muscles. These exercises have invariably in Lovett's hands aggravated the pain, which is generally much diminished by the recumbency. The exercises prescribed are arch flexions of the spine when sitting; then resistance is offered to backward flexion of the trunk, with the arms behind the head; and, finally, when the patient is much stronger, she lies on the face, and the feet are held while, with the arms on the hips, she flexes the trunk. It is merely a question of prescribing easy motions which cultivate the erector spinæ muscles, then addressing motions particularly to the region most affected, whether cervical, dorsal, or lumbar. One of the most successful cases that the author has treated in this way was a young woman, in whom the pain and sensitiveness were limited to the sacrum and coccyx; and it required the most intimate knowledge of the Swedish movements on the part of the masseuse to apply them so as to reach the proper muscles.

As the exercises are prescribed the patient is encouraged to walk a little; and if spinal motion is very painful, a supporting-brace is allowed, which consists of a steel waist-band and two tempered steel uprights fastened to shoulder-straps. This is used merely to support the spine until the muscles are able to do so, and is to be regarded as a temporary measure, to be abandoned at the earliest possible moment. The patient is gradually encouraged to do more each day, without regard to her sensations, except during menstruation, when she is kept in bed.

Personally, the writer, in cases where there is any question of uterine trouble, always has an examination made by a gynæcologist, to be sure that no uterine displacement exists which might cause the backache. The patient is encouraged to progress as fast as may be, and to leave invalid ways behind her. The treatment is, in a word, first, rest, and then muscular development, in connection with the most effective measures addressed to the general condition.

But a great many patients do not need such stringent measures as these, nor, on the other hand, can every one give up entirely for weeks or months; a treatment which can be pursued at home, and which is perfectly suitable for lighter cases, must be found. These patients should be encouraged to lie down, at least part of the day; even working-people can save two or three hours by going to bed early. If possible, they should lie down both morning and afternoon, and should get up late. In short, the same aim of resting the back should be kept in mind as in the severer cases, and this should be accomplished in every way.

In such cases the elastic brace should be applied almost as a routine treatment; and in severer cases a rigid steel back-brace to prevent spinal motion when the sensitiveness is severe, taken off only for exercise.

The general condition is most carefully looked after, the bowels are regulated, the appetite is stimulated, and eggs (from six to ten daily) are prescribed, often with a little alcohol. Walking and riding are almost invariably painful, and it is always a question how much of these exercises should be done. It seems best at first, during the period of rest, to limit them as much as possible, and to increase them very gradually, laying the chief stress upon exercise devoted to the muscles affected.

Many patients cannot afford, or for some reason cannot have, massage and electricity, and yet they do well, only they progress more slowly. If attainable, these means of treatment are of the utmost importance. Hot douches to the spine have often been of use in such cases. The exercises are the same as those used in the severer cases, and for the best results the cases should be in the hands of some person skilled in massage and Swedish gymnastics. The tendency is certainly to err on the side of encouraging these patients to do too much, to walk too far and to over-exercise, and one has to remember continually how great is their disability and how carefully they must be handled.

The brace is gradually discontinued, the amount of exercise increased, and the period of recumbency diminished. It is the same plan of treatment as before,—first, rest, and then graduated and progressive exercise,—and these are no more important than is the general routine of treatment addressed to the general neurasthenia; either alone accomplishes little.

THE HÆMOSTATIC PROPERTIES OF PUFF-BALL.

HALL (*Medical Record*, No. 1186, 1893), some five years ago, was called to see a case of epistaxis occurring in the third week of typhoid fever illness. Ice, persulphate of iron, and compression did not give relief; plugging was not entirely successful, owing to the fluidity of the blood permitting oozing to occur in spite of

this measure. A puff-ball (*Lycoperdon giganteum*) was then applied in pieces and stuffed loosely into the nares, the cotton plugs being reinserted. Hemorrhage ceased at once and did not recur.

A second case of nose-bleeding yielded at once to packing of the nares with puff-ball, without the addition of the cotton plugs.

In a third case of bleeding after extraction of a tooth, puff-balls seemed to give better results than styptic cotton, adhering more quickly and firmly than did the latter.

THE STRONGLY COUNTER-IRRITANT EFFECTS OF THE USUAL MASTOID OPERATION.

BUCK (*Medical Record*, July 29, 1893), though conceding that the main object in opening the mastoid process is to secure cleanliness and drainage, holds that the good effects are not confined to the benefits accruing from the attainment of these ends, but that the derivative or counter-irritant influence plays a very important part in effecting a cure. In fact, in operating upon the mastoid, we may establish an issue on a comparatively large scale. A gaping wound two or three inches in length is made in the skin, and a pit large enough to admit the end of the forefinger is excavated in the underlying bone itself. This deep excavation may be left gaping, and afterwards, for a time, be treated as an open wound. If there is any virtue in the principle of counter-irritation, the beneficial effects that flow from it will be provided in liberal measure to the patient thus operated upon. In those cases in which disease of the ear has set up more or less active intracranial inflammation, this counter-irritant power may be sufficient to turn the scale from a fatal to a favorable issue. The histories of three cases are detailed, all of them seeming to point strongly in favor of the theory advanced by Buck. In the first two cases the intracranial lesions were very nearly alike in extent and intensity. In the one, the original centre of carious bone, with its accumulation of foul *débris*, was effectively cleansed, and yet the intracranial disease pursued its course, and death followed even under the influence of this drainage and cleansing. It had acquired so great an independent momentum that it no longer needed, for a continuance of its harmful course, the stimulus of the adjacent centre of middle-ear disease.

In the second case the original centre of carious disease in the middle ear was drained and cleansed; but, instead of growing worse, underwent a steady and progressive change for the better. It seems impossible to attribute this change to anything but the counter-irritation furnished by the presence of an extensive issue in the immediate neighborhood.

In the third case there was, so far as could be ascertained, entire absence of any disease of the middle ear or mastoid bone; hence establishment of an issue pure and simple was the only therapeutic procedure of which there could be any question. Indisputable, too, was the existence of some deep-seated and serious disease; whether at the base of the brain, or in the sphenoidal bone, or where, was not a matter of importance. The symptoms incident to this yielded promptly and the patient recovered entirely.

A NEW SUGGESTION AS TO THE SURGICAL TREATMENT OF HEMORRHOIDS.

BECELAERE (*Medical Record*, No. 1186, 1893) proposes a method of operating for hemorrhoids which, though he has not put it in actual practice, is sufficiently ingenious to justify a trial. He bases his confidence in the efficiency of this method on his knowledge of the normal disposition of the hemorrhoidal veins which traverse the sphincter muscle and underlie the mucous membrane in about the same way as a hernial gut hangs out of the inguinal canal into the skin. If a more complete adhesion of the mucous membrane to the underlying muscular layer can be secured, thus destroying the submucous connective tissue, the conditions favorable for the formation of hemorrhoidal masses can be removed, and a radical cure would probably result. Hence it is proposed to detach in a circular manner the mucous membrane of the sphincters, turning down a mucous cuff, which should forthwith be returned to its former situation and secured by the necessary number of stitches. Ultimately there would result from this cicatricial tissue just sufficient to secure a more close approximation of the mucous and the muscular layers of the lower bowel, thereby destroying at once the venous loops under the mucous membrane and the connective interspace wherein they become dilated. Where the knife is contraindicated, perimarginal igni-puncture might be of service. This *modus operandi* may be performed as follows: After insuring the benefit of all usual antiseptic precautions, the surgeon should paint over the previously shaved regions a sufficient coat of

simple collodion, which he should allow to thoroughly solidify before proceeding any further. This is an excellent means of avoiding the disagreeable effects of radiating heat. A metallic dilator of convenient size, and filled with cold water, may further be inserted within the anus of the patient, postured in the exaggerated lithotomic decubitus. The surgeon then slowly passes the smallest point of a thermo-cautery, at a brown heat, right underneath the mucous membrane of the rectum, until the upper sphincter is reached. Withdrawing the instrument, he may reinsert it at another point, about a centimetre, or half an inch, distant from the previous puncture. It is a question to be decided only by actual experience how many punctures may thus be made at one sitting; although *a priori* no reason seems apparent for not completing the whole operation. A large-sized galvano-caustic needle, constructed *ad hoc*, might prove more useful even than Paquelin's instrument, because it could be introduced with the finger in the rectum, the necessary current being turned on with the cautery *in situ*, thus avoiding the danger of perforating the mucous layer.

ANTISEPTIC VARNISH—STERESOL.

BERLIOZ (*Journal de Médecine et de Chirurgie Pratiques*, tome lxiv., 64 année, 4 series) prepares an antiseptic varnish, which he terms steresol, by mixing the following ingredients:

℞ Purified shellac, 270 grammes;
Purified benzoin, entirely soluble in alcohol, 10 grammes;
Balsam of Tolu, 10 grammes;
Crystallized carbolic acid, 100 grammes;
Chinese essence of canella, 6 grammes;
Saccharine, 6 grammes;
Alcohol enough to make a litre.

This dressing is employed in regions which cannot be bandaged in the ordinary fashion.

A METHOD OF APPLYING PRESSURE TO THE SEAT OF A FRACTURE FOR THE PURPOSE OF BRINGING THE BONY FRAGMENTS INTO ACCURATE APPOSITION AND RETAINING THEM THERE UNTIL CONSOLIDATION HAS TAKEN PLACE.

MONKS (*Boston Medical and Surgical Journal*, July 20, 1893) describes a very ingenious and simple method of treating fractures the deformity of which exhibits an inveterate tendency to recur. This consists in wrapping the limb in a layer of cotton sheeting, and applying over this a light plaster-of-Paris bandage. The bones are then moulded into position by traction and digital pressure, the latter being exerted upon the outside of the plaster bandage. This pressure is continued while the plaster is hardening. When the latter has firmly set, the bones have no tendency to slip out of place.

HOW SHOULD THE GENERAL PRACTITIONER DEAL WITH STRANGULATED HERNIA?

GERSTER (*Boston Medical and Surgical Journal*, July 20, 1893) holds that the conduct of the general practitioner in dealing with a case which may possibly be, or is, strangulated hernia, should be regulated in accordance with the following rules:

1. In cases of uncertainty give the benefit of the doubt to the assumption that an obscure tumor of the groin is a hernia.

2. Be gentle in attempting taxis, and do not spend too much time over it.

3. Be thoroughly aseptic in herniotomy, and divide the constricting bands freely, not with the probe-pointed knife cutting from within outward, but with the scalpel under the guidance of the eye, from without inward.

INTESTINAL ANASTOMOSIS BY A NEW METHOD.

CONNELL, in the *Journal of the American Medical Association* for July 29, 1893, published the description of an original method he has devised of intestinal anastomosis without plates and with but two knots. The bowel having been severed, or a portion resected, and the cut ends having been invaginated or closed with silk sutures, the subsequent steps of the operation are as follows: The closed ends are passed by each other, and an opening of any length desired is made in the convex border of both the proximal and distal end of the intestine. The opposing walls are then placed side by side, so that the incisions are parallel with each other. The work is facilitated by a suspending thread or loop run through the bowel at each end of the opening, and held by an assistant. To insert this thread for suspension, the needle is passed from within outward through the walls of one portion of the bowel and over to the other, passing the needle from within outward; then both ends are brought up through the openings and tied. When

there is a tendency to great eversion of the margins of the openings, or when there is an unusually long incision, a third suspending thread inserted midway between the other two will be of added assistance.

As the assistant applies gentle tension or traction to these suspending loops, the opposing serous surfaces are brought into perfect contact, and the first suture can be quickly inserted. This is of looped stitches, made by inserting the needle from without inward through the bowel wall, at the right end of one opening, then passing it back and forth through all coats of both walls which are in apposition until the full length of incision has been secured; the needle is then passed from within outward through the bowel wall at the opposite end of the opening, leaving each stitch as a loop on the side where taken, or each alternate stitch may be loose, thus having the loops all on one side.

The middle suspending loop is next withdrawn, if inserted, and the sutured walls separated as far as the looped stitches will allow; the knotted ends of suspending loops down through the middle are drawn up on the other side, thus bringing the serous surfaces of the other two opposing walls in apposition.

A second suture is then inserted in the same manner as the first, with the exception that no loops are made, all stitches being drawn tight.

Next all suspending threads are withdrawn, and the loops of the first suture are drawn up, the ends of both sutures are pulled taut and tied, not cutting off the ends of sutures after making the first knot until the second is made, as they are necessary in making traction.

After both knots are tied the ends are cut off close, so as to leave no dangling drains, and union by anastomosis is complete. When catgut is employed for suturing, the knot must be secured with a silk ligature to prevent loosening, as it becomes softened by the intestinal and serous fluids.

THE RESTORATION OF SYMPHYSEOTOMY.

GARRIGUES (*Medical Record*, May 20, 1893), after a brief review of the history and statistics of symphyseotomy, dating the proposition of this operation to Sigault, in 1768, and giving the credit for the first symphyseotomies in this country to Dr. Hirst and Dr. Jewett, states that since January, 1886, there have been in all one hundred and twenty-two cases, of which twelve died. In this country, seventeen cases with three deaths.

By pulling on the iliac bones and bending the joints of the hips and knees after symphyseotomy, a space of two inches may be gained without injury to the sacro-iliac articulation. If the separation is carried as far as three or four inches, one or both of these joints are torn open. In consequence of the separation of the pubic bones a considerable change takes place in all the diameters of the pelvis, whereby it is rendered much more spacious in all directions on planes supposed to be at right angles through the axis.

In regard to the method of operating, Garrigues states that the subcutaneous section has the advantage of great simplicity, and of having a small wound entirely removed from the lochial discharge, and it gives rise to less hemorrhage. On the other hand, it has the disadvantage that if hemorrhage occurs it cannot be properly attended to. The open method consists in making a longitudinal incision in front of the symphysis, extending it sufficiently above the symphysis to have easy access to the latter and below to the root of the clitoris, or, deviating to the left of that organ, into the vulva between the labium majus and minus. Sometimes the symphysis is ossified or has so irregular a shape that no knife can be drawn through it. The bladder may be so compressed between the head and the symphysis that it can hardly be distinguished, and may therefore be wounded, and both bladder and vagina may be caught between the ends of the pubic bones if care is not taken to hold them back in closing the pelvis.

After having cut the symphysis, the child should be delivered at once, and this should be done according to the rule that if the head engages forceps should be used. If it is movable above the brim version should be performed. In uniting the bones all that is necessary is to put the sutures in so deeply as to include half an inch of the fibrous tissue on both sides in front of the symphysis and the pubic bones. In tying down the sutures the bones are brought together by pressure on the trochanters, and the legs should be stretched out or even should hang down on each side of the operator. The best way of keeping the bone ends together is by the use of rubber adhesive plaster, three broad strips of which are put round the trochanters and crossed on the abdomen above the wound. The wound should be dusted with iodoform and covered with iodoform gauze and gutta-percha tissue, and the dressing renewed every day, as it becomes soiled by the lochial discharge.

The patient should be lifted upon the bed-

pan whenever needed by holding her behind the trochanters. She should lie with outstretched legs, and the knees should be tied together. She should be kept in bed for three weeks.

The prognosis is extremely good for the mother and very good for the child. As a result of the introduction of this operation, craniotomy, induction of premature labor, and Cæsarean section must be abolished, while Porro's operation will be supplanted to a great extent. Even many forceps and version operations ought to yield to symphyseotomy, since these operations, performed with a true conjugate of less than three and one-fourth inches, are accompanied by a great mortality both for mother and child, or lead to idiocy in the latter.

CANCER AND ITS TREATMENT.

ADAMKIEWICZ (*La Médecine Moderne*, 4 année, No. 32, 1893) states that there can be no doubt that cancer is a microbian disease. The parasite, although not positively identified, is a protozoa, and either a coccidia or gregarine. It is well known that every organism perishes if saturated with its own products of elimination; hence cancer is destroyed by the ptomaine, developed as a result of its own activity. This ptomaine has been called by Adamkiewicz "cancroine," and is analogous to the cadaveric neurine, having a chemical composition of $C_5H_{13}NO$.

If neurine is injected in a man affected with cancer of the lower lip, that lip swells, the tumor suppurates, and if the injections are systematically continued the tumor disappears. Corresponding with this disappearance, the glands lessen in volume. It is certain that neurine acts directly on the cancerous tissue.

THE TREATMENT OF TETANUS.

BERGER (*Revue de Thérapeutique Medico-Chirurgicale*, 60 année, No. 11) reports three cases of tetanus cured by vigorous surgical intervention. This intervention in one case took the form of amputation of the finger; in another of extirpation of the phalanx; in the third, repeated disinfection by means of curette and scissors.

Berger contributes his present statistics, reporting fifteen cases of tetanus, thirteen treated by ordinary methods, and all resulting fatally; two treated by amputation, both recovering; but he concedes that this is simply a coincidence, since amputation cannot be considered as an infallible proceeding, but rather as a means of suppressing a focus of infection. The best that can be said for this procedure is that it places the patient in the best condition for a cure. As for the antitetanic injections, Berger holds that they have no curative value, though it is possible they may act as preventives. A letter of Treille is cited, quoting the experience of Range, who treated, at Dahomey, two cases of tetanus by antitoxine, both resulting fatally.

Preventive injections made in a certain number of cases were not successful in averting the disease.

In regard to amputation, Berger holds that the decision as to whether or not this operation should be performed must depend upon the severity of the particular attack of tetanus, upon the failure of other methods, upon the importance of the sacrificed member, and, finally, upon the extent of the wound. The operation does not sensibly affect the prognosis.

IMMEDIATE UNION AFTER DIVISION OF ANAL FISTULA.

In *L'Union Médicale*, 47 année, No. 59, BAZY, apparently on the basis of a case which terminated unsuccessfully, strongly advises immediate reunion after excision of anal fistula. He proceeds to give an elaborate description of his technique, but until further evidence is afforded as to the probability of a fair percentage of successes following this operation, the majority of surgeons will be content, we think, to allow healing from the bottom by granulation, though immediate union, were this possible, would be highly desirable.

MENTHOL IN ITCHING AFFECTIONS OF THE SKIN.

COLOMBINI (*La France Médicale*, 40 année, No. 22) states that though the antipruriginous properties of menthol are becoming thoroughly known, the difficulty of properly regulating the dose has prevented the application of this remedy. He strongly advocates this drug in cases of eczema of the scrotum, vulva, etc. He uses the following formulæ:

℞ Menthol, 5 to 10 grammes;
Alcohol, 100 grammes.

Or,

℞ Menthol, 10 grammes;
Oil of sweet almonds, 10 grammes.

Or,

℞ Oxide of zinc, 25 grammes;
Starch-powder, 25 grammes;
Vaseline, 50 grammes;
Menthol, from .5 to .8 gramme.

Or,

℞ Oxide of zinc, 10 grammes;
Subnitrate of bismuth, 10 grammes;
Menthol, 1 to 3 grammes;
Starch-powder, 1 to 30 grammes.

When the application is to mucous surfaces the mixture should be weakened somewhat in menthol, since otherwise there is a painful burning sensation.

DIAGNOSTIC AND THERAPEUTIC VALUE OF PUNCTURE OF THE SPINAL CANAL, ACCORDING TO THE METHOD OF QUINCKE.

According to *La Médecine Moderne*, 4 année, No. 32, 1893, QUINCKE has made in all forty-one punctures of the spinal canal in twenty-two cases. In many instances the benefit of this procedure was extremely transient. The normal cerebro-spinal fluid should vary between 1000 and 1009 in specific gravity. It should contain 1 part of albumin to 2000 of water. In cases of chronic hydrocephalus the fluid is not materially altered. When the amount of albumin reaches 2 in the 1000 an acute inflammation may be suspected. In one case of tumor involving the posterior part of the brain, 5, and even 7, parts of albumin were found to the 1000. The normal intraspinal pressure of the fluid is 150 millimetres of water. In pathological subjects this pressure sometimes reaches 700 millimetres. Puncture is particularly valuable from a therapeutic stand-point in cases of acute exudation. An effort was made to establish permanent drainage. In two cases there resulted œdematous swelling of the dorsal muscles and but transient improvement.

Ewald practised this procedure in two cases of grave hydrocephalus; the ordinary hypodermic needle served for the purpose of puncture. There was brief and marked improvement.

Sahli treated three cases of tubercular meningitis by puncture, but without marked effect, either immediately or remotely.

Naunyn made seventy-one punctures in seven cases. In one there was no exudate. Autopsy showed that pus was present here. Relief of headache was noticed in some of these cases.

Ziemssen practised these punctures in two cases consecutive on meningitis; the maximum quantity of liquid removed was ninety centimetres. It was quite clear. In one case of a similar nature, relieved at first, recurrence followed in three days, requiring a repetition of puncture. The ordinary effect of these punctures is a very markedly diminished headache. At times the effect is instantaneous and very striking.

Bruns endeavored to diminish intracranial pressure in three cases of cerebral tumor by direct trephining. In the first case there was a growth in the posterior portion of the brain. The whole of the posterior cerebral lobe was exposed by means of an extensive bone operation. This was followed by an enormous flow of cerebro-spinal fluid. The head pains disappeared immediately, also the difficulty with the pupil, and the patient was able to walk. Improvement continued for six months. In the second case, although there was no escape of fluid at the time of operation, pain ceased immediately. At the end of several weeks suddenly there was an enormous escape of fluid. At the autopsy a large tumor of the frontal lobe was found. In the third case the trephine opening was placed directly over the tumor, which was located in the temporal lobe. Although there was no escape of cerebro-spinal fluid, improvement was marked.

OPERATIVE TREATMENT OF LUXATIONS OF THE ELBOW.

TILLAUX (*La Médecine Moderne*, 4 année, No. 32) contributes an interesting case of luxation of the elbows subject to treatment five months after injury. The arm was flexed at a right angle; there was only slight supination and pronation. No attempt was made to reduce, but the joint was freely exposed by lateral incision. There was found a particularly redundant growth of osteophytes absolutely interfering with motion. The articular extremities of the ulna and radius were resected, the triceps, which had been divided, was sewed, and the arm was dressed in a moulded splint.

Convalescence was rapid and uninterrupted, and the patient was able to execute all the movements of pronation, supination, flexion, and extension with nearly complete strength.

Quenu, in a similar case, resected, but did not get satisfactory results.

Lucas-Championnière, Routier, and others strongly endorsed the open method, but found one single posterior incision sufficient.

Berger believed in complete resections.

TWO CASES OF CUT-THROAT TREATED BY TRACHEOTOMY AND IMMEDIATE SUTURE.

FITZGERALD (*Lancet*, No. 3645, 1893) successfully treated two cases of cut-throat by the application of immediate sutures to the wound and, where indicated, the insertion of a tracheotomy-tube.

In the first case an incised wound three inches long extended across the front of the neck and divided the thyroid cartilage just below the vocal cords. The hemorrhage was slight, but the patient was collapsed. Chloroform was administered and tracheotomy at once performed, the cut edges of the cartilage accurately stitched together with silk sutures, and the external wound closed. The wound healed somewhat slowly, but the man soon showed symptoms of pulmonary trouble, and eventually died from septic pneumonia twenty-four days after the infliction of the wound. At the necropsy the original wound was found to be quite closed and the divided parts of the larynx were in perfect apposition.

In the second case the thyro-hyoid membrane was divided and the epiglottis was completely severed from the thyroid cartilage. The patient was collapsed, pale, and cold, and there was free hemorrhage, venous and arterial, which was immediately arrested by forci-pressure. Tracheotomy was at once performed, and a Trendelenburg tube introduced; the epiglottis was accurately stitched to the thyroid cartilage with catgut, the wound in the thyro-hyoid membrane closed, and the external wound closed with wire and horse-hair sutures, leaving a drainage-tube at either end. The wound was dressed with iodoform and perchloride of mercury gauze, a card-board splint was applied to the neck, and the head was kept flexed by a cap and bandage. The patient was fed by the mouth on the next day. The tracheotomy-tube was removed on the fifth day, the drainage-tube on the left side on the sixth day, and that on the right on the ninth day. Excepting for one small area about the position of the drainage-tube, healing was by first intention. The patient was discharged perfectly well twenty-one days after admission.

SOME POINTS OF PRACTICAL IMPORTANCE IN THE USE OF CURVED SKIN INCISIONS.

BEALE (*Lancet*, No. 3645, 1893) gives the following reasons for preferring a curved to a straight incision wherever the former is practicable.

1. It heals more rapidly, and for these reasons: there is really only one edge of the wound, that belonging to the flap, that is movable, the other edge being still adherent to the subjacent tissue; moreover, the flap having been stitched to the neighboring skin or held well away from the seat of operation, both edges of the wound are quite uninjured by the time the sutures are inserted.

2. The resulting scar is smaller, though this is only of importance in certain parts, for the skin may be incised obliquely in making a curved incision, so that the epidermis on the edge of the flap is slightly in advance of the true skin.

3. It fully exposes the part to be operated upon, assuming that the base of the flap is twice or three times its length, and gives the operator plenty of room in which to work.

4. Suturing the edges is easier than in the case of a straight incision, especially if the skin be pricked in one or two situations exactly opposite to one another before the incision is made, and often the curved wound is adapted to the shape of the part better than a straight one.

5. The resulting cicatrix is not over the seat of operation.

6. Drainage is often most perfect by inserting a tube through an incision in the base of some part of the flap, thus giving no hinderance to the primary union of the incision and preventing any possible discharge from infecting the edges.

7. Incision through inflamed or diseased skin may be avoided and yet the disease be easily reached.

8. There need be no tension on the edges of the wound, as a flap of skin is, so to speak, loose; and if there is fear of tension, a thick suture may be passed through the base or some part of the flap and out again, and then through the skin on the other side of the incision and there fixed, thus avoiding a long suture beneath either edge of the wound.

THE TREATMENT OF STRICTURE OF THE URETHRA BY ELECTRICITY.

MOULLIN (*Lancet*, No. 3645, 1893) announces, with the air of one just having made the discovery, that the treatment of stricture of the urethra by the application of weak electric currents seems to have lost rather than have gained in favor during the last three years. He proceeds to give his own experience with this means of treatment, embracing twenty courses of treatment in eighteen patients. With a very weak current, not exceeding two or three mil-

liampères, the only effect perceptible after half an hour's trial was a little redness around the meatus. If the strength was increased up to eight or ten milliampères the cicatricial tissue was undoubtedly softened, the surface became moist and sticky, small bubbles of gas made their appearance, the area of redness grew wider, and the stricture tissue yielded so much that sometimes after one sitting, sometimes two or three, a bougie of larger size could be introduced, and in one or two instances this improvement continued and even progressed for some days without anything more being done. The effect was closely similar to the tying in of a catheter, only it was more rapid. If catheters were not passed at frequent intervals retraction always took place, in some cases rapidly, in others more slowly.

Moullin could not find that the passage of a weak current for half an hour on some half a dozen or perhaps a dozen occasions, with intervals of several days between, effected any change in the character of the scar.

In regard to deep strictures following chronic inflammation, he is of the impression that the stricture tissue softened and yielded with more rapidity under the electrical treatment than under the ordinary treatment with bougies. This, however, is all he can say in favor of the method.

THE TREATMENT OF TUBERCULOUS DISEASE OF JOINTS BY THE INDUCTION OF LOCAL ŒDEMA.

BROWN (*Lancet*, No. 25, vol. i., 1893) states that he has treated tuberculous disease of the joints by the production of local œdema of the affected parts in nine cases taken from among his hospital patients. On the basis of this experience he is not able in any way to confirm the favorable report given by others. The cases were daily under observation for one month, and the treatment was carried out in strict accordance with the description of Page. At first a slight improvement took place, but this may be fairly attributed to rest in bed and better surroundings. The pain produced was not great and the results were entirely unsatisfactory.

AFTER-TREATMENT OF CASES OF ABDOMINAL SECTION.

MARTIN (*Birmingham Medical Review*, vol. xxxiv., No. 179) states that after abdominal section it is necessary to drain the peritoneal cavity where there is peritonitis or ascitic effusion; where during the operation the peritoneum has been soiled with fæcal matter, urine, pus, or offensive contents of tumors; where the abdomen has been washed out; where extensive adhesions have been broken down; where, from any cause, free oozing of blood is taking place into the peritoneum; where there is reason to believe the bowel or bladder has been injured.

It is a wise precaution to insert a tube where, even though there be no hemorrhage at the close of the operation, it is likely to occur afterwards. The tube should be of stout, tough glass, sufficiently strong to resist the pressure incident to vomiting after operation. It should be opened at the lower end; its side should be perforated at frequent intervals, the holes extending almost to the top of the tube, and the upper extremity should be flanged. The bottom of this tube should reach the bottom of Douglas's cul-de-sac, and its value is that it acts as a sentinel, indicating the onset of severe internal hemorrhage in time for its prompt treatment; that it is a potent hæmostatic, checking free oozing by enabling the blood effused to be at once removed, and by admitting air to the raw surface and keeping it more or less dry. If necessary, astringent solutions may be injected down the tube, in order to act directly on the source of bleeding; that it prevents peritonitis by the removal of fluid; and that it is a curative agent in ascites due to peritonitis or papilloma of the peritoneum. When the intra-abdominal fluid is bloody it is advisable to employ a "sucker" with a tube, and indeed this adjunct to drainage should be employed whenever the tube is used. The evils of the drainage-tube are:

1. If it be retained longer than a few hours it undoubtedly prevents primary union at the site of its insertion. After its removal, the aperture heals by granulation. At most, however, this means only a delay of a very few days.

2. If the drainage-tube be retained many days, there will be a greatly-increased risk of the subsequent formation of a ventral hernia. The site of the tube remains as the weak spot in the line of the cicatrix.

3. It may break during vomiting. This can only occur where a very thin, fragile tube is used.

4. If the tube used be too short and have no circular rim, it may slip wholly into the peritoneal cavity. When the nurse goes to drain the tube, she finds that it has disappeared and the wound has closed over it. To remove it, the surgeon must take out a stitch, pass his finger into the abdomen, and feel for the tube.

It is usually easily discovered and brought to the surface. Should this fail, an anæsthetic must be given, the abdomen reopened, and a thorough search made for it. It is an accident that cannot happen if the tube be provided with a wide rim.

5. If too long a tube be inserted, the lower end rests on the rectum, while a considerable portion projects beyond the skin. Should the binder or bandage be applied very tightly, the tube is made to exert injurious pressure on the rectum, and may even punch a hole in it. In applying elastic pressure to the abdomen, care must be taken to arrange layers or pads of cotton-wool around the tube in such a way that no pressure is made by the binder directly on the tube.

6. The tendency of the omentum to protrude through the holes in the sides of the drainage-tube is very remarkable. It becomes applied to the tube, and is forced by the intra-abdominal pressure through the perforations as a series of fatty herniæ. Each of these projects into the lumen of the tube as a pear-shaped mass of fat, whose narrow neck is constricted by the margin of the hole. The venous return in each protrusion is obstructed, and it becomes congested, swollen, and finally strangulated.

Hemorrhage from adhesions sometimes bleed furiously, especially when the growth has to be separated from the vessels of the liver, the mesentery, or the pelvis. This bleeding is to be controlled by ligature, forci-pressure, sponge pressure, Paquelin's cautery, and various astringents. The hemorrhage from the pedicle may come from the ligature having been tied too tightly, or from slipping of the broad ligament from within its grasp, or from bleeding into the connective tissue of the pedicle below the ligature, forming an acute hæmatocele of the broad ligament. This tends to force the ligature up over the rest of the pedicle until it slips off altogether. The hæmatocele then bursts into the peritoneal cavity, and the patient may rapidly become exsanguinated. In other cases the ligature holds, but the broad ligament becomes distended with blood to such an alarming extent as to threaten life. In cases of bleeding when the drainage-tube has been used, the symptoms become apparent at once. When the wound has been closed, however, reliance must be placed on the recognition of the signs and symptoms of hemorrhage, and of these the pulse and temperature are most indicative. The progressive hourly rise in the pulse and fall of the temperature is almost diagnostic. When the bleeding is from the pedicle, the abdomen must be opened at once, the clots cleared out, and the bleeding-point found. In many cases it will be necessary to leave on hæmostats for twenty-four hours. If the bleeding comes from adhesions, abdominal compression may first be tried, and when the hemorrhage is from adhesions deep in the pelvis, the vagina may be plugged. If this fails, a weak solution of perchloride of iron may be injected down the drainage-tube into the pelvis. Finally, the abdomen may have to be reopened, the clots being washed out and the bleeding-points searched for. In case the bleeding comes from deep pelvic adhesions, which other means fail to control, the pelvic cavity should be firmly plugged with a long strip of iodoform gauze, the end of which is brought out through the abdominal wound. The vagina should also be tightly plugged at the same time, so as to exert counter-pressure on the bleeding vessels. The gauze may be cautiously removed in about forty-eight hours.

If a broad ligament hæmatocele form, it should be let alone, as in ninety-nine cases out of a hundred the hemorrhage ceases spontaneously and the effused blood is slowly absorbed.

The general treatment is that usually given in such cases.

TREATMENT OF GONORRHŒA IN WOMEN.

ASCH (*Bull. Gén. de Thérap.*, 62 année, tome i. 22) treats gonorrhœa in women by uterine vincal or vaginal injections of a lotion made up of equal parts of glycerin, lanolin, and water. From two to five parts of this lotion are added to a hundred parts of water.

ANTISEPSIS IN URETHRAL SURGERY.

KROZIUS and CHYDENIUS (*Annales des Maladies des Organes Genito-Urinaires*, 11 année, t. x. 127), on the basis of more than five hundred experiments upon the germicidal value of the antiseptic agents commonly employed in urinary surgery, find that biniodide of mercury is less powerful than the bichloride, but that both the streptococcus and the staphylococcus show marked resisting power against the sublimate solution. The coli bacillus is not readily destroyed by nitrate of silver. Boric acid and permanganate of potassium have very feeble antiseptic powers. They conclude that sounds and bougies are best disinfected by nitrate of silver solution, 1 to 500, the instruments being allowed to soak for an hour.

TUBERCULOSIS OF THE PROSTATE.

MARMEDEL (*Beitr. z. Klin. Chir.*, Bd. ix.) concludes that in one-third of all the cases tuberculosis of the prostate develops insiduously. In the remaining cases the beginning symptoms are those of prostate and vincal catarrh. Later there is purulent flow, sometimes spermatorrhœa, bloody diarrhœa, and abscess formation. The disease rarely appears in the prostate alone, the bladder, seminal vesicles, and testicles also being involved.

The treatment should consist of intravesical injections of iodoform, later of perineal incision of abscesses, and even of prostatotomy.

[Perineal prostatotomy in cases of tubercular prostate is not to be commended.—ED.]

Reviews.

STRICTURE OF THE URETHRA. By G. Frank Lydston, M.D.
Chicago: The W. T. Keener Company, 1893.

The versatile Lydston contributes a book of three hundred and twenty-seven pages on the subject of "Stricture of the Urethra." The work is characterized by the author's customary vigorous diction, and treats the entire subject in an exhaustive manner, beginning with a careful consideration of the anatomy of the urethra, of instrumentation, and continuing with the varieties of stricture and their appropriate treatment. The work is well illustrated with a number of colored plates. The views expressed throughout the work are modern and rational, and will accord well with those of the specialist who has widest experience in this line of work.

For strictures of the meatus, division alone is advised. For strictures of the pendulous urethra, dilatation will be found disappointing, the author holding that very few strictures of this kind are ever thoroughly cured except by cutting. The only condition in which dilatation is applicable is when the stricture is young and soft. The prospect of cure of penile strictures by dilatation is directly proportionate to their distance from the meatus. Tight strictures may be dilated up to 15 or 16 and then cut. Simple uncomplicated stricture of the deep urethra should be treated by dilatation. Recurrent, tortuous, traumatic strictures, and those complicated in other ways, should generally be cut (external urethrotomy). In the treatment of urethral fever, quinine, morphine, and pilocarpine are advised. In the traumatic form of urethritis, aconite or veratrum viride are suggested. In the uræmic form, pilocarpine and croton oil, or elaterium, are the remedies of choice.

The various operative treatments of stricture are defined at length. Otis and Keyes are quoted extensively, as are other recognized leaders in genito-urinary surgery. The book terminates with a chapter upon fistulæ and their treatment by urethroplasty, by some remarks upon prostatic hypertrophy, and by observations on some of the local complications of stricture.

This work is most readable, and in following its teachings the student or practitioner can feel sure that he is acting in accordance with the sentiments of the most distinguished specialists in this department of surgery.

ELECTRICITY IN DISEASES OF WOMEN AND CHILDREN. By Franklin H. Martin, M.D. With illustrations.
Chicago: The W. T. Keener Company, 1893.

In this book of two hundred and seventy-three pages upward of one hundred pages are taken up with a description of the principles of electrical science and definitions of the terms employed, and an enumeration of the instruments required. This is usually such an essential part of a work of this kind, and moreover is a custom so hallowed in the observance, that perhaps it should not receive comment. Still, it seems a waste of time to devote so much space to what can be learned at least equally well from the ordinary hand-books of physics.

Of course the author has modified Apostoli's treatment of fibroids, and cites cases illustrative of the beneficial effects of treatment. Unlike some enthusiasts who have written on this topic, he is willing to concede that operation may be necessary and may accomplish good results.

Chapters xviii. and xix. are made up of reports of cases successful and the reverse. It is interesting to note that in chapter xviii. thirteen cases appear, while in the nineteenth chapter—a record of failure—only six cases are cited.

The author states that we have discovered that about seventy-five per cent. of all fibroids of the uterus, because of electricity, should never be touched with the knife.

The high authority of Robert Newman is quoted in support of the treatment of strictures by electrolysis. Though it is true that Newman never carried entire conviction as to his results to the medical profession in New York, this was perhaps because a prophet is without honor in

his own country. He gives a brief section on the treatment of hemorrhoids. Galvanism is suggested in the treatment of cancer. There is a chapter on faradization, which is suggested for a variety of pathological conditions.

Chapter xxv. is headed "The S. Weir Mitchell Treatment for Hystero-Neurasthenia." The method of producing abortion by electricity is described, and a chapter is devoted to galvano-cautery surgery in gynæcology; while static electricity is discussed in due course, and is rendered attractive by some peculiarly lovely illustrations.

Finally, the book closes with a summary of treatment of general diseases of the brain, under which heading appears the somewhat ambiguous statement that "nothing yields to electricity in almost any form, as muscular rheumatism."

May the distinguished author preface yet another edition before the year is out.

INTERNATIONAL CLINICS: A QUARTERLY OF CLINICAL LECTURES. Edited by John M. Keating, M.D., LL.D., Judson Daland, M.D., J. Mitchell Bruce, M.D., F.R.C.P., and David W. Finlay, M.D., F.R.C.P. Volume I. Third Series.
Philadelphia: J. B. Lippincott Company, 1893.

In the large number of contributions made to this volume of the *International Clinics*, among the most interesting may be found one upon "The Risks of Syphilitic Infection incurred by Gynæcologists," by Dr. William Goodell; another upon "Rises of Temperature due to Diseases of the Cerebrum," by Dr. W. Hale White; another upon "The Surgical Treatment of Gall-Stones," by Dr. A. Pearce Gould; and another upon "Multiple Sclerosis, Traumatic Tremor, and Railway Spine," by Dr. F. X. Dercum.

ELECTRO-THERAPEUTICS OF NEURASTHENIA. By W. F. Robinson, M.D.
Detroit: George S. Davis, 1893.

As might be expected, this very limited subject covers but seventy-two small octavo pages. It forms, nevertheless, a very important part of the rest-cure for the relief of exhausted nervous systems. The book is written in a pleasant style, and the physician who buys it for information can in a very short space of time gain a clear idea of the subject with which it deals. The advice given at the close of the book, not to be impatient if results do not rapidly appear, is very necessary, as is also that "you commence treatment with moderation, and carefully watch the effect of electricity upon the patient's system."

RECENT DEVELOPMENTS IN MASSAGE. By Douglas Graham, M.D.
Detroit: George S. Davis, 1893.

Dr. Graham is already known to the profession as an enthusiastic advocate of the employment of massage in the treatment of disease, chiefly by his treatise on this subject, which was published in 1890. Those who desire a very brief account of this remedial measure will probably find in this book much satisfaction; but it should be clearly understood that it amounts to nothing more than a summary of the subject, and should not be purchased with the idea of learning the intricacies of what practically amounts to an art. On the contrary, the text illustrates the therapeutic results of the treatment rather than the methods which should be employed in its conduction. We believe that the average physician does not resort to massage as frequently as is proper, and in many cases where he does so, the results obtained are unsatisfactory through the failure to carry out some part of the method. By reading this book the physician will be able to do much to avoid such errors.

BACTERIAL POISONS. By N. Gamaleia, M.D. Translated by E. P. Hurd, M.D.
Detroit: George S. Davis, 1893.

The indefinite terms ptomaine and leucomaine, toxine and antitoxine, are so generally used in medical literature to-day that very few of the profession have clearly-defined ideas as to the mode of their production and their other characteristics. The publication of this little brochure is, therefore, peculiarly appropriate, and will no doubt interest those physicians who wish to have rational information concerning these new substances which have been discovered in connection with the bacteriological research. The book does not profess to give the technical information required by a bacteriologist, but gives the ordinary physician information which is desired concerning poisons.

TREATMENT OF STERILITY IN THE WOMAN. By Dr. De Sinety. Translated by E. P. Hurd.
Detroit: George S. Davis, 1893.

The subject of this book is one upon which the physician is very frequently consulted, and a condition which in many instances he is unable to relieve. We do not find, on looking over its pages, that there is anything distinctly new proposed in the way of treatment, but it affords a brief, concise, and complete statement of the best measures which the physician can call to his aid in the treatment of such cases. Interesting statements are made in re-

gard to the influence of habit, climate, and intermarriage upon fecundation, and the fact that the author is not only an experienced physician, but a well-known writer, renders his views of value. The fact that the price of this series of books is but twenty-five cents enables every one to obtain them.

A CHAPTER ON CHOLERA FOR LAY READERS: HISTORY, SYMPTOMS, PREVENTION, AND TREATMENT OF THE DISEASE. By Walter Vought, Ph.B., M.D.
Philadelphia and London: The F. A. Davis Publishing Company, 1893.

This little book is supposed to describe the typical course of an attack of cholera in order that the laity may be familiar with its symptoms. It also contains chapters upon prevention, quarantine, disinfection, and a history of cholera in this country and abroad, with another upon the cause of the disease.

The illustrations of the cholera bacillus, while good, are nevertheless of very little service to the laity, who cannot possibly be expected to make a bacteriological examination to aid diagnosis.

If cholera becomes prevalent, we doubt not the book will fulfil a useful office and be widely purchased. Otherwise we fear that its mission will fail.

CHOLERA: ITS CAUSES, SYMPTOMS, PATHOLOGY, AND TREATMENT. By Roberts Bartholow, M.D., LL.D.
Philadelphia: Lea Brothers & Co., 1893.

Dr. Bartholow tells us that he has prepared this little volume of one hundred and thirty-two pages at the suggestion of the publishers, during "the convalescent stage of a long and serious illness," from which the profession are glad to know that he has recovered.

The chapters consist of one upon the "History of the Disease," another upon the "Etiology of Cholera," and then follow others describing the "Symptoms," "Pathology," and "Treatment." The latter chapter occupies half of the volume, and contains brief statements of the more popular treatments accepted by European physicians during the last few years. Dr. Bartholow evidently is not as favorably impressed with enteroclysis as have been some other physicians, and believes that calomel, which has played so prominent a part in the treatment of previous epidemics, has had its reputation still further increased by recent experience. As is usual with Dr. Bartholow's contributions to medical literature, the style is direct and to the point, and the reader is not left in any doubt as to the opinions of the author.

ON SNAKE-POISON: ITS ACTION AND ITS ANTIDOTE. By A. Mueller, M.D.
Sydney: L. Bruck, 1893.

Readers of the THERAPEUTIC GAZETTE have probably noticed during the past year a number of articles in the Progress columns of cases of snake-bite which have been more or less successfully treated by large doses of strychnine, according to the method of Dr. Mueller. That gentleman has now published a small book of ninety pages, in which he details the success which has attended his plan of treatment, and strongly urges upon the profession the value of strychnine in practically all forms of snake-bite. The book is an interesting addition to an important subject, which more or less directly interests both the profession and the laity, and Dr. Mueller deserves great credit for the ability which he has shown in urging the general adoption of the plan of treatment which, so far, seems to have been as successful as any yet discovered, if we can believe the reports which have appeared in the Australian journals.

QUININE IN CHOLERA. By Erskine B. Fullerton, A.M., M.D.
Columbus, Ohio: Press of Nitschke Brothers, 1893.

This is a small essay of thirty-two pages, reprinted from the *Meaical Record* of October 1, 1892, and later dates, in which the author gives his views in regard to the proper treatment of cholera, and particularly urges that quinine be largely employed in the treatment of this serious disease.

Correspondence.

LONDON.

(From our Special Correspondent.)

THE BRITISH MEDICAL ASSOCIATION AT NEWCASTLE.

Having been for some months compelled to breathe the highly unpleasant air of this great metropolis, which has lately been rendered even more unpleasant than usual by the continued extraordinary hot weather, the anticipated change to the bracing climate of our northern town of Newcastle was looked forward to with great pleasure; nor was there any room for disappointment in the result. Although the weather might have been finer, the clerk of the weather seems to have realized how hard it would have been to expect harassed medical men to attend sectional meetings and stay

there when the temperature of the rooms was more than 80° F., and our visit to Newcastle was characterized by a general absence of sunshine and a distinct reduction in the oppressive temperature of the previous weeks. The arrangements had been so well made by the local executive committee that the meeting at Newcastle will long be remembered as one of the most successful that the Association has held.

The accommodation was all that could have been desired, and was afforded by the two magnificent colleges associated with the University of Durham,—the colleges of medicine and science. In one or other of these buildings most of the sectional work was done, while in the former were situated a convenient reception-room, with post-office, telephone-room, and a staff of type-writers, who gave their services gratuitously to members. There was also easy access to the terraced roof, from which an excellent view of the surrounding country could be obtained. Some of the rooms on the ground and first floors were also devoted to the display of the annual museum, with some of the features of which I hope to deal later on.

The Sectional Meetings.

The business of the meeting was conducted at sectional meetings, and I shall now endeavor to give a brief sketch of some of the most interesting papers and the discussions thereon.

Section A, Medicine.—The first discussion dealt with the question of chronic glycosuria in middle life, and was opened by Sir Dyce Duckworth, who seemed inclined to admit that there were many cases in which large quantities of sugar might be passed during long periods, during which signs of degeneration were so little marked, and the patients remained in such a good condition of general health, that it was difficult to say that their glycosuria was truly identical with diabetes. The discussion was followed up by Professor Gairdner, Dr. Garrett Anderson, and Dr. Shingleton Smith, each of whom mentioned cases in which glycosuria had been abundant for many years without greatly interfering with the patient's comfort. All agreed in condemning rigid dietetic restrictions in such cases, as such precautious generally seemed to do more harm than good.

At the conclusion of this discussion there was a most interesting demonstration by Dr. Geo. Murray, Professor Oliver, and others on myxœdema, with especial reference to its treatment by thyroid feeding. The cases shown by Dr. Murray were particularly interesting, as they were some of the earliest submitted to this mode of treatment, and thus afforded an opportunity of studying the effect of time on the result. Dr. Murray gave me on another occasion an opportunity of seeing the first case treated by him, showing me photographs taken at intervals during the treatment. This patient two years ago was almost unable to walk, had lost nearly all her hair, and her speech was nearly unintelligible. She was also very deaf, and had very markedly the cutaneous affection characteristic of myxœdema. She at first received the gland in the form of subcutaneous injections of a glycerin extract, and improvement was almost immediately observable, as shown by a photograph taken a few weeks later. When it was discovered that feeding with the raw gland, or with a few drops of a glycerin extract was equally efficacious, this method was substituted for that by injection, and the improvement went on uninterruptedly. So great is the success that the patient can now attend to all her household duties, do her own marketing, and is indistinguishable from a perfectly normal individual. The growth of hair has entirely returned, and her speech is absolutely unaffected, as well as her hearing. Two things Dr. Murray impressed me with, however. She is extremely sensitive to the least overdosage, and can only bear about 5 minims daily of Brady & Martin's extract; at the same time withdrawal of the remedy for a few days produces a very distinctly unfavorable effect on the patient, who begins to get puffy and stupid again. A most striking fact was mentioned with regard to all the cases,—viz., that there was not the least tendency to the establishment of a tolerance, the same dose having just as much effect after a long course of treatment as at the commencement, the effects of an overdose being also just as apparent at whatever stage it was given.

The Section of Pathology also had under consideration the question of myxœdema. Dr. Murray detailed some experiments on monkeys, in which, by removal of the thyroid gland, he had produced the characteristic myxœdematous condition. He then supplied them with the thyroid juice of the sheep, and restored them to normal, being able to repeat the experiment at will, with constant results in the same animal. In this connection, Dr. Byrom Bramwell gave his own experience of the clinical effects of thyroid treatment, especially with reference to cretinism. His observations on these cases led him to suspect that the same treatment might be equally efficacious in various obstinate skin-affections. An abstract of his

remarks will, however, be found on another page.

An admirable supplement to Dr. Bramwell's paper was afforded by Dr. Thomson, who detailed marvellous results in the treatment of three cases of sporadic cretinism. One child, a cretin, had a normal sister, who, although several years younger, was many inches taller, the brother having ceased to grow at a very early stage. Thyroid feeding was commenced, with the result that the brother began almost at once to grow, and was still rapidly diminishing the disparity between his sister and himself. Dr. Murray showed me also some interesting measurements of a similar kind. A cretin under his care had grown nearly an inch in a few weeks as the result of thyroid feeding. If there ever was any doubt in the minds of the profession as to the efficacy of this mode of treatment, all this must now be forever dispelled in presence of the Newcastle cases.

At the second meeting of the Medical Section a paper was read by Dr. C. S. Redmond on the "Cool-Bath Treatment of Enteric Fever." It will be found printed on another page. The author combated the prejudice against the cool-bath treatment on the ground that it was an heroic measure. The advantages of the cool-bath over the expectant treatment were many. It removed headache, delirium, stupor, and diminished thirst. He quoted the opinion of Dr. Hare, who, from observations on eleven hundred and seventy-five cases in Brisbane University, said that "the reason why the treatment has made so little headway in England and Australia is incomprehensible, the clinical evidence in its favor being simply overwhelming." The author preferred a tepid bath—at 87° F.—for as long a time as the patient could bear it without discomfort. This diminished the fever, by direct abstraction of heat from the body. The water was warmed and the patient's body cooled in equal proportions, and, as a consequence, there was a tendency to calm rest. The intellect continued clear, the healthy action of the skin was maintained, and on the kidneys a distinct diuretic effect was produced. The mortality was reduced by fifty per cent., and this was the greatest material gain. He concluded by giving details of four cases in which recovery took place.

In the discussion which followed, the President, Dr. William Ord, said that, although he had not gone into the regular treatment of enteric fever by baths, he used the graduated bath largely in the treatment of severe cases. He always used the bath when the patient's temperature reached 100° F. and was still rising. He found that delirium passed off, that in patients who had passed beyond the state of delirium into that of coma consciousness returned, and that even the presence of inflammatory conditions did not interfere with the success of the bath treatment. He thought that the bath treatment exercised a decided sedative action on the skin.

In the Section of Surgery much time was devoted to a discussion on the radical cure of hernia. The subject was introduced by Rushton Parker, who, by his large experience, was exceptionally qualified to speak with authority. His paper will be found on another page, and is a good review of the present position of the operative treatment of the disease. A paper followed by Dr. Haslam, on the surgical treatment of perforating simple ulcer of the stomach, which excited some interest.

At the second day's meeting of the surgeons the chief feature of interest was a paper, illustrated by numerous lantern slides, and read by Professor Victor Horsley, on the "Surgical Treatment of Cerebral Tumors." He said that he would take the opportunity of speaking on the subject from three different points of view: first, the treatment of the patient previous to consultation with a view to surgical interference; secondly, the objects for which surgical interference should be undertaken; and, thirdly, some new points in the technique of the operation. He premised that a case of cerebral tumor was one in which there were progressive localized symptoms. But in the clinical investigation of patients it was notorious that, before the nature of the case is known, the symptoms might be few and their localizations undiscovered. He asked the meeting to express a definite opinion as to how long one was justified in treating a suspicious case with iodide of potassium, etc., before calling in a surgeon. Under the present condition of affairs the appeal to the surgeon was generally made when it was too late to hope for cure by operation. He ventured to state that the treatment by drugs was not justified for more than six weeks, unless a most remarkable and striking improvement was manifest. It was admitted on all sides that there was no single kind of cerebral tumor which was in the least degree curable by drugs, except, perhaps, a gumma or tubercular nodules. In the case of the tubercular affection, treatment by arsenic, cod-liver oil, etc., was justifiable for a certain time, the duration of which might be longer than in the instance of iodide of potassium,—four months, for instance. He protested vigorously against the present system of

turning to operation as a last resort, instead of employing it in its proper place as a primary mode of treatment, and not secondary. It appeared to him that the only possible mode of curing even a cerebral gumma was to remove it. Of all the complications produced by cerebral tumors, there was none more sad than the melancholy feature of optic neuritis. From close observation, both in the adult and in children, he was sure that the pericranium had no osteogenetic power, and that consequently it was of no moment whether it be retained in contact with the bone or not. In cases where the dura mater had been affected it was necessary to cut it away, and it was not possible to replace the bone. He would note that where the bone had to be replaced, the practice of the American surgeons—of returning large pieces and not cutting it into small fragments—should be followed. For the removal of the bone, the most expeditious method was, he believed, the use of the mechanical saw—made for him by Messrs. Hawksley, which he produced—and the use of powerful bone-forceps. In conclusion, he wished to make it particularly clear that the subject of the surgical treatment of cerebral growths must be approached with a determination to formulate for suspicious cases a decided line of action, and that the expectant treatment was so fraught with danger to the patient that only after a relatively brief course of treatment by drugs ought the aid of surgery to be sought.

Bramwell has been led to try the treatment of psoriasis by the internal administration of thyroid extract by the very remarkable results with regard to the nutrition of the skin which he had already obtained in cases of myxœdema and sporadic cretinism. In the first case of myxœdema which he had treated by the thyroid extract there had been in course of treatment profuse desquamation of the skin of the palms of the hands and soles of the feet, and he had noticed the same phenomena to occur in the subsequent cases submitted to the same treatment, which comprised eleven of myxœdema and three of sporadic cretinism. The following cases showed that he was justified in expecting that a similar desquamative effect would be produced by the thyroid extract in cases of psoriasis.

Case I.—Admitted on January 13, 1893. The disease was of nine months' duration; was general over the whole body. The crusts were thick, and the subjacent skin presented a very red, angry appearance. The general health was good, but drug treatment and baths had entirely failed to influence the psoriasis. On February 4 treatment by thyroid gland was commenced, half a gland being given daily. By the 10th there was a decided improvement, and on the 14th it was noticed that the crusts on the back were being shed in large scales, leaving smooth skin underneath. By the 16th all the angry, red appearance of the skin had disappeared, and by March 3 the cure was nearly complete. On April 1, there being an apparent arrest in the improvement, the thyroid treatment was suspended and arsenic given, but with disastrous results. The rash at once reappeared. On April 11 treatment was resumed, 15 minims of Brady & Martin's extract being given daily. In three days there was again marked improvement. By May 3 there was nothing left save a slight pigmentation of the skin, and on weighing it was found that the patient had gained fourteen pounds in weight. He was discharged cured on June 6.

In Case II. the disease was equally extensive and of seven months' duration. This was treated by thyroid extract only. On May 10 5 minims were given. On the 11th the patient already found her arm less stiff and irritating. On the 12th the inflammation was possibly less. On the 13th large scales began to separate, but the appetite failed. By the 15th this was quite restored, and the improvement not being as rapid as desirable, the dose was doubled. From

this time the improvement was rapid, and the patient was discharged cured on July 14.

In Case III. the disease had been of six and a half years' duration, and notwithstanding the previous failure of all other treatment, after six weeks' of thyroid treatment the patient was practically cured.

The author had treated several other less severe cases, and, save in two instances, with complete success. In one of the failures, the patient, an epileptic, was taking large doses of bromides all through the thyroid treatment, and this may have accounted for the failure. He also knew of another failure in a friend's practice. He had also tried the treatment in a case of lupus, with considerable improvement. He hopes for equally good results in cases of acute eczema.

In the discussion which followed, Dr. Simons Eccles mentioned that he had seen a case of obstinate psoriasis improve remarkably as a result of the administration of Pöhl's spermine. He suggested that the action of all these animal extracts might be, as Pöhl thought, due to an oxidizing influence on the tissues.

In the treatment of chronic endometritis, Dr. Duke has found boric acid of very great value. It possesses the advantages of being cleanly, non-irritating, and antiseptic. Its affinity for water, while not so marked as that of glycerin, makes boric acid an excellent topical application to the vaginal walls in cases of leucorrhœa, vaginitis, etc.

Dr. Duke showed also a useful form of insufflator, designed by himself, and made by Messrs. Arnold & Sons, London, for the purpose of dusting the vaginal walls with the acid. Another instrument consisted of a hollow vulcanite tube with a tightly-fitting piston for the application of boric acid to the endometrium. Its manner of use is as follows: The cervical walls having been cleansed of all secretion by the use of Duke's cervical curette, the tube is charged with the powdered acid by being pressed point downward into a vessel full of the same, the piston being withdrawn. The piston is now replaced, and the tube gently inserted into the uterus (in the same manner as the uterine sound). The piston is then pressed home, and in this way a stick of slightly-compressed boric acid is deposited in the uterus.

This application, made twice a week, has been successful in the author's hands, in curing numbers of cases of this intractable complaint. He recommends its trial in preference to some of the more severe plans of treatment which so often prove after all disappointing.

VOLTAIC ALTERNATIVES IN EYE-AFFECTIONS.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—I am in receipt of a letter from Dr. G. G. Faught, of Philadelphia, in which he claims to have been the first to recognize the value of voltaic alternatives in eye-affections, and assumes from the substance of an editorial in the THERAPEUTIC GAZETTE of April 15 that I, in my article on "The Value of Voltaic Alternatives in Optic Nerve Atrophy," presented to the American Electro-Therapeutical Association, attribute the authorship of this method to Dr. Webster Fox. As the article in question was in no way historical, but purely clinical, it was not my purpose to discuss any claims of priority in the employment of this method; I simply mentioned Dr. Fox as having, by his cordial endorsement of it, impressed its value upon me. It was very far from my intention to deprive my friend Dr. Faught of any credit due him in this matter. I should be very glad if Dr. Faught would give the profession the result of his wide experience in this use of voltaic alternatives.

Very truly yours,

C. EUGENE RIGGS.

ST. PAUL, MINN.

Notes and Queries.

A WARNING TO THE READERS OF OUR JOURNALS.

All publishers of medical journals no doubt have had the experience of submitting to the depredations of impostors who call upon physicians to collect under an assumed name, claiming to have authority to make collections.

The latest that has been reported to us is a certain Ed. E. Evans, representing himself to be an agent of the Law and Literary Exchange of Boston, E. L. Wanamaker, President.

This man called upon physicians, soliciting subscriptions for our journals, collected money for them, and made no returns to the publisher.

We cannot find that the Law and Literary Exchange, which claims an address in Boston and also one in Chicago, has an address in either city, and inform our readers that they should not pay subscriptions to unknown collectors.